Hi 8

VIDEOCASSETTE RECORDER

EVV-9

SONY®

SERVICE MANUAL

SPECIFICATION

	Approx. 1.8 kg (4 lb)
	Approx. 6.0 kg (13 lb 4 oz with the DXC-325/NP-1A/cassette tape)
equirement:	12 V DC
consumption:	8.5 W
	18.8 W (with the DXC-325 in recording mode)
ating temperature:	0° to 40°C (32°F to 104°F)
rage temperature:	–20°C to 60°C (–4°F to 140°F)
deocassette:	Sony E6-HiME, P6-HiMP, P6-MP series or equivalent
Tape speed:	Approx. 14.3 mm/sec.
Continuous operating time:	
	Approx. 60 min. (with the DXC-325 and one NP-1A)
REC or PB time:	120 min. (with E6-120/P6-120)
F FWD/REW time:	Approx. 7 min. (with E6-120/P6-120)

Video

Video recording system:	Rotary 2-head herical scan system
	Luminance: FM recording
	Chrominance: SC low-range conversion direct recording
Input:	Y: 1.0 Vp-p ±1.0 dB, 1k ohm, unbalanced, sync negative
	C: 0.286 Vp-p ±1.0 dB, 1k ohm, unbalanced
Output:	NTSC composite video: 1.0 Vp-p ±1.0 dB, 75 ohms, unbalanced, sync negative
Horizontal resolution:	Hi8 mode: 400 TV lines
(color/monochrome)	Standard mode: 240 TV lines
S/N ratio:	Hi8 mode: 45 dB
(color)	Standard mode: 45 dB

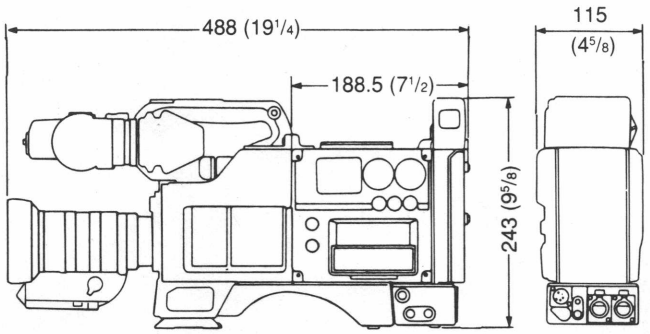
Audio

Input:	AUDIO CH-1/CH-2 (XLR 3-pin, female)
(0 dBu = 0.775 Vrms)	Mic: –60 dBu, more than 3 kilohms, balanced
	Line: +4 dBu, more than 10 kilohms, balanced
Output:	AUDIO OUT (phono jack): –10 dBu (at 47-Kilohm load), unbalanced
	EARPHONE: Level adjustable (max –18dBu) 8-ohm load
Frequency response:	AFM: 30 Hz to 15 kHz
	PCM: 20 Hz to 15 kHz
Dynamic range:	PCM: more than 80 dB

Connectors

Video/Audio/Control/Power:	
(Input/output)	50-pin connector × 1
Video	
(Output)	VIDEO OUT (BNC) × 1
	VIDEO OUT (phono jack) × 1
Audio:	
(Output)	AUDIO OUT (phono jack) × 1
(Input)	AUDIO CH-1 (XLR 3-pin, female) × 1
	AUDIO CH-2 (XLR 3-pin, female) × 1
(Output)	EARPHONE (minijack) × 1
	for an 8-ohm earphone
Power:	
(Input)	DC IN 12 V (XLR 4-pin)
(Output)	RFU DC OUT × 1
	Special minijack, 5 V DC

Dimensions (at docking with the DXC-325)



Unit: mm
(inch)

• Design and specifications are subject to change without notice.

Supplied accessories

Guide (1)
Shoulder strap (1), Metal mount (1)
Screws: M4 x 6 (2), M4 x 12 (2), cleaning cassette V8-6CLHSP (1)
Operation manual (1)

Not supplied accessories

RF modulator: RFU-89 UCKA
Rechargeable battery: NP-1A
Camera adaptor: CMA-8
Battery charger: BC-1WA
8mm videocassette tape: P6-HiME/P6-HiMP/P6-MP series
Cleaning cassette: V8-25CLH
Carrying case: LC-420

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SECTION 1
GENERAL DISCRIPTION

1-1. FEATURES

Hi8 format for high quality picture

The Hi8 video system gives much better picture quality than 8mm video system. For Hi8 recording, Hi8 ME (Metal Evaporated) or Hi8 MP (Metal Particle) videocassettes must be used. The EVV-9000 is provided with both Hi8 and standard record/playback mode. The cassette type is automatically detected. And the recorded mode is also automatically detected when playback.

Y/C separated video input

Conventionally, video equipment exchanges the composite video signal containing the luminance (Y) signal and the chrominance (C) signal mixed. The composite video signal is liable to produce interference resulting in picture quality loss. The EVV-9000, on the contrary, uses the Y/C separated video input, which minimizes flickers and color blur. Sharpness is enhanced to such an extent that hair and fine stripes are clearly visible.

One AFM and two PCM audio channels

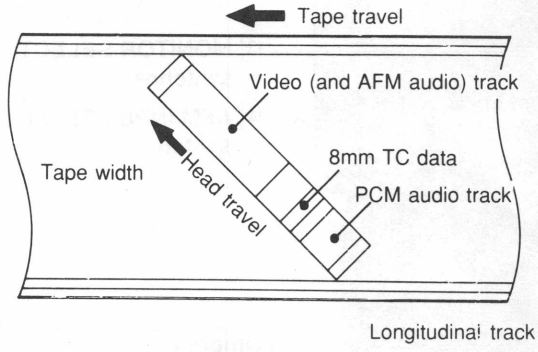
The EVV-9000 provides high quality audio with its monaural AFM and stereo PCM recording system.

Built-in 8mm time code generator

The 8mm time code is recorded onto a tape for precise editing reference.

8mm tape format

The video, audio and time code signals are recorded on the 8mm video tape as follows.



8mm time code

The 8mm time code has been developed to record the absolute frame address onto the tape for precise editing reference. The 8mm time code is digitally recorded by units of hour, minute, second and frame by the video heads.

Note

The 8mm time code is used only for 8mm format. It is not compatible with time codes recorded in other time code format.

Hi8 (High Eight) Video System

The 8mm video system uses metal tape, so it can record a large amount of information and give enhanced picture quality. The Hi8 video system is based on the 8mm video system but has improved the picture quality.

High Quality Picture

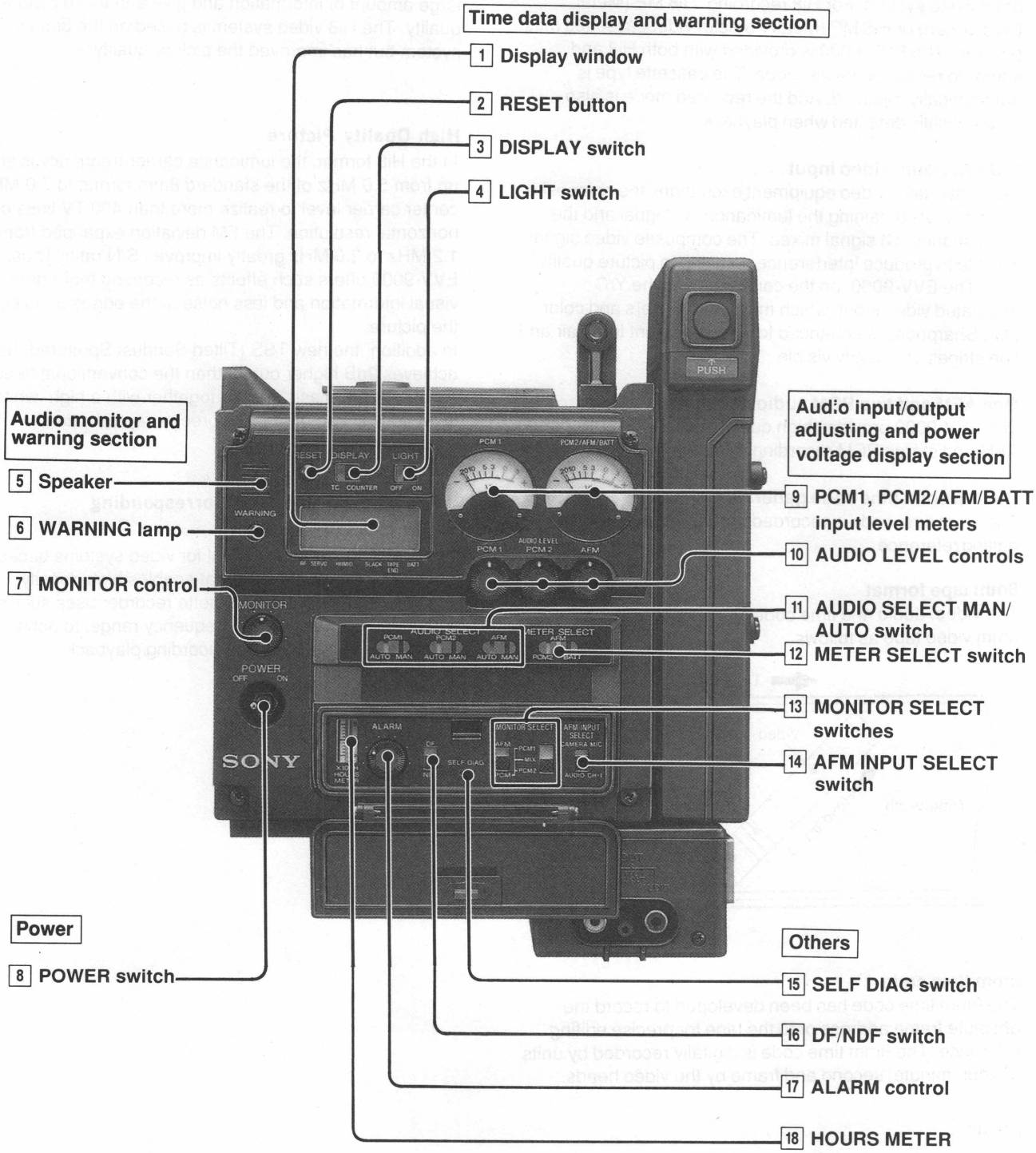
In the Hi8 format, the luminance carrier frequency is shifted up from 5.0 MHz of the standard 8mm format to 7.0 MHz at center carrier level to realize more than 400 TV lines of horizontal resolution. The FM deviation expanded from 1.2 MHz to 2.0 MHz greatly improves S/N ratio. Thus, the EVV-9000 offers such effects as recording more detailed visual information and less noise at the edges of objects in the picture.

In addition, the new TSS (Tilted Sendust Sputtered) head achieves 2dB higher output than the conventional head, and a new pre-emphasis system together with a high white clip level (220%) can offer more precise reproduction.

Use of High Grade Tape Corresponding to the Hi8 Video System

Metal evaporated tape is ideal for video systems because it has large magnetic energy that enables high-density recording. The Hi8 video cassette recorder uses such high-grade tape covering a wide frequency range, to achieve a high-quality video signal for recording/playback.

1-2. Location and Function of Parts and Controls



[1] Display window

Setting or condition	Displayed content
DISPLAY switch [3]: TC	Time code (See page 4.)
DISPLAY switch [3]: COUNTER	Tape running time
① When recording the time code in the NDF mode (See DF/NDF switch [16].) ② When playing back the tape recorded with the NDF mode	NDF
When an error occurs, see to "Warning System" (P1-13)	■ (warning cursor)

[2] RESET button

Setting of DISPLAY [3]	Indication to be reset
TC	Time code on the display window [1] 1)
COUNTER	Tape running time on the display window [1] 2)

1) See "Recording the 8mm time code" (P1-8).
2) The tape running time indication can be reset during recording or playback.

[3] DISPLAY switch
Selects indication on the display window [1].

[4] LIGHT switch
Set the switch to ON to illuminate the display window [1] and PCM1, PCM2/AFM/ BATT input level meters [9]. Set the switch to OFF to turn off the illumination.

[5] Speaker

VTR mode	Sound through the speaker 1)
During recording	Sound in the E-E mode 2) Warning beep 3)
During playback	Played-back sound
Other modes	Sound in E-E mode 2) Warning beep 3)

1) When you connect an earphone to EARPHONE jack [29], the sound through the speaker is automatically cut.
2) E-E (Electric-to-Electric) mode
The sound of an input audio signal which passed through the amplifier in the VTR without passing magnetic converting circuits such as a head or tape is heard through the speaker. This E-E mode permits the input signal to be checked.
When the safety tab on the cassette is slid out to prevent accidental erasure, or the POWER switch on the video camera is set to OFF, no sound will come from the speaker.
3) See "Warning System", P1-13.

[6] WARNING lamp
Lights up or blinks when something wrong or undesirable has happened with your VTR. For details, see "Warning System", P1-13.

[7] MONITOR control
Adjusts the audio playback level of the sound through the speaker [5] or EARPHONE jack [29]. When turning it fully counterclockwise, the monitor sound cannot be heard.

[8] POWER switch

Turns the power on and off. When the power is turned on, time code or tape running time is displayed on the display window [1].

[9] PCM1, PCM2/AFM/BATT input level meters

Level meter	Setting of METER SELECT [12]	Contens of display
PCM1		PCM1 recording level
PCM2/AFM/BATT	PCM 2	PCM2 recording level
	AFM	AFM recording level
	BATT	Power voltage level

[10] AUDIO LEVEL controls

Used to manually adjust the audio recording level of the following channels.

PCM1	PCM1 channel
PCM2	PCM2 channel
AFM	AFM channel

[11] AUDIO SELECT MAN/AUTO selector

Selects automatic or manual adjustment of the audio recording level.

AUTO	For automatic adjustment (The automatic gain control circuit will be activated to regulate the audio level to assure optimum recording.)
MAN	For manual adjustment by using the AUDIO LEVEL controls [10] (Any excessive input, if any, is blocked by a limiter to minimize distortion at the peaks.)

[12] METER SELECT switch

Selects display on the PCM1, PCM2/AFM/BATT input level meter [9].
See the description of the PCM1, PCM2/AFM/BATT input level meters [9].

[13] MONITOR SELECT switches

The right and left switches select the audio signal output from the AUDIO OUT connector [32] and the speaker [5] or the EARPHONE jack [29].

Left switch	Right switch	Audio signal output
AFM		Sound of the AFM channel
PCM	PCM1	Sound of the PCM1 channel
	MIX	Mixed sound of the PCM1 and PCM2 channels
	PCM2	Sound of the PCM2 channel

[14] AFM INPUT SELECT switch

Selects the audio signal to be recorded on the AFM and PCM1 channels.

CAMERA MIC	AFM channel: the signal from the microphone on the video camera PCM1 channel: the signal input to the AUDIO CH-1 connector [26].
AUDIO CH-1	AFM channel: the signal input to the AUDIO CH-1 connector [26]. PCM1 channel: the signal from the microphone on the video camera.

15 SELF DIAG switch

16 DF/NDF switch

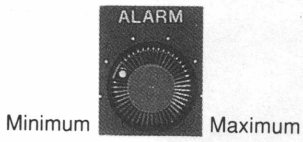
Select the mode to record the time code.

DF	Drop frame mode (Select this mode to record the time code matching the real time.)
NDF	Non-drop frame mode (A discrepancy will arise between the time code and real time.)

For details, see "Drop Frame", on P1-8.

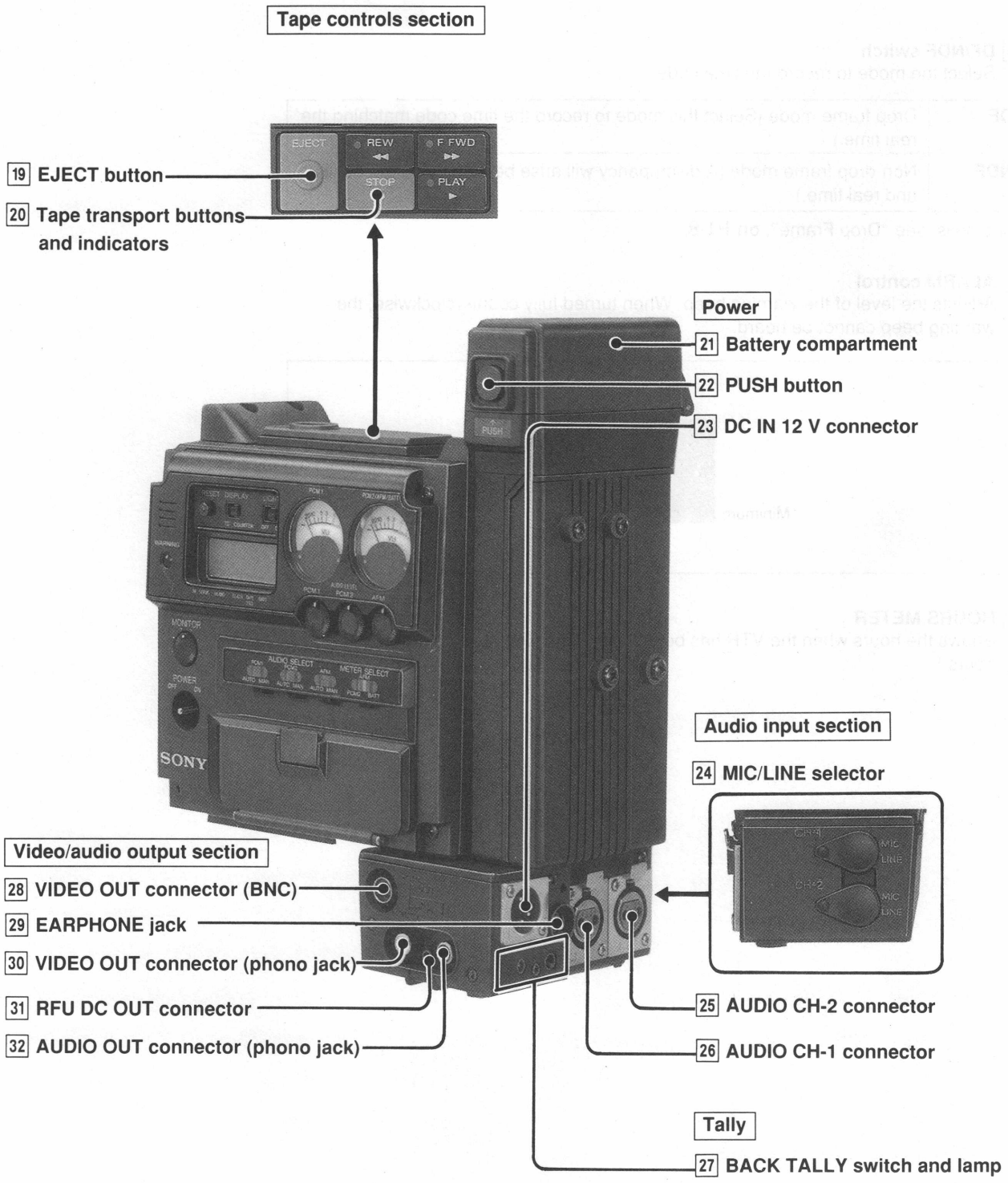
17 ALARM control

Adjusts the level of the warning beep. When turned fully counterclockwise, the warning beep cannot be heard.



18 HOURS METER

Shows the hours when the VTR has been in service. (One division represents 100 hours.)


Tape controls section
EJECT
REW
F FWD
STOP
PLAY
19 EJECT button
20 Tape transport buttons and indicators
Power
21 Battery compartment
22 PUSH button
23 DC IN 12 V connector
Audio input section
24 MIC/LINE selector
CH-1
CH-2
MIC
LINE
Video/audio output section
28 VIDEO OUT connector (BNC)
29 EARPHONE jack
30 VIDEO OUT connector (phono jack)
31 RFU DC OUT connector
32 AUDIO OUT connector (phono jack)
25 AUDIO CH-2 connector
26 AUDIO CH-1 connector
Tally
27 BACK TALLY switch and lamp
SONY

19 EJECT button [1]
Press down to open the cassette holder. The botton can be pushed with the lid either closed or open.

20 Tape transport buttons and indicators [1]
◄◄ REW button and indicator
■ STOP button
►► F FWD (fast forward) button and indicator
► PLAY button and indicator

1) These buttons are deactivated while the VTR is recording.

21 Battery compartment
Insert a charged NP-1A battery pack (not supplied).

22 PUSH button
Press down to open the lid of the battery compartment.

23 DC IN 12V connector (XLR, 4pin)
Connect a CMA-8 camera adaptor (not supplied) to operate the VTR with an AC power supply.

24 MIC/LINE selector

MIC	Set to this position when connecting external microphones to AUDIO CH-1 26 or AUDIO CH-2 25.
LINE	Set to this position when connecting the audio system to AUDIO CH-1 26 or AUDIO CH-2 25.

25 AUDIO CH-2 connector (XLR, 3-pin)

26 AUDIO CH-1 connector (XLR, 3-pin)

27 BACK TALLY switch and indicator
Set the switch to ON to show whether the VTR is recording or not recording to people behind the video camera.

Switch	Indicator
ON	Activated when recording
OFF	Not activated

28 VIDEO OUT connector (BNC) [1]

29 EARPHONE jack (minijack) [1]
Connect an earphone (not supplied).
You hear the same sound from the earphone as ones from the speaker 5.

30 VIDEO OUT connector (phono jack) [1]

31 RFU DC OUT connector
Connect the RFU-89UCKA RFU modulator (not supplied) to this connector and VIDEO OUT connector 30 and AUDIO OUT connector 32 for connecting to the VHF antenna terminal of a TV receiver.

32 AUDIO OUT connector (phono jack) [1]

1) When the safety tab on the cassette is slid out to prevent accidental erasure or the POWER switch on the video camera is set to OFF, the input video and audio signals which passed through the amplifier in the VTR without passing magnetic converting circuits such as a head or tape (in the E-E mode) do not appear at these connectors.

Recording the 8mm time code

The 8mm time code is automatically recorded as shown in the following table regardless of the DISPLAY switch setting.

Tape	Time code
Blank tape	Time code recording starts from "00:00:00:00"
Recorded tape	Time code follows the previously recorded time code value.

To reset the time code when recording

1 Insert the recorded tape cassette in the cassette holder.
2 Set the DISPLAY switch to TC.
3 Set the VTR to the recording pause mode or the stop mode and hold down the RESET button for two seconds or longer. The time code on the display window is reset to "00:00:00:00" and blinks. To cancel the reset mode, set the VTR to the mode other than recording pause mode or the stop mode.
4 Press the VTR button on the video camera or lens unit to start recording.

Note

8mm time code cannot be reset during recording or playback.

Drop Frame

The time code is counted on the assumption that the video signal frequency is 30 frames/second. However, the actual frequency of the NTSC video signal is slightly different, about 29.97 frames/second. During a long recording, the time code and the actual NTSC signal will drift out of sync. Drop frame mode solves this problem and synchronizes the code and signal in the following manner.

① When the time code ends a minute, it drops the first two frames beginnig the next minute.

Example 00:05:59:29
⇩
00:06:00:00, 00:06:00:01 } are dropped.
00:06:00:02

② When the time code ends the tenth minute, the first two frames are not dropped.

Example 00:09:29:29
⇩
00:10:00:00

To summarize, drop-frame time code eliminates two frames each minute except for minute 00,10,20,30,40 and 50.

In the non-drop frame mode, the time code does not omit any frames. There is no agreement between the time code and the real time.

1-3. VIDEO CASSETTE TAPE IN USE

Cassette type and automatic change of recorde/playback mode

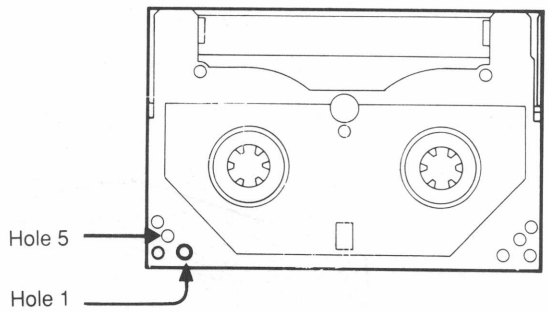
For Hi8 recording, use Hi8 ME or Hi8 MP tapes. The Hi8 ME tape offers excellent quality recording, while the Hi8 MP tape offers high quality recording at lower cost.
When using the standard 8mm video cassette tape, the standard recording and playback are performed. The cassette type and recording mode are automatically detected.

Note on the video cassette tape

In production or post-production applications with Hi8-format video equipment, use the Hi8MP video cassette tape for editing using the 8 mm time code.

Cassette type detection

The VTR reads the holes in the cassette to determine what type of cassette it is.



Tape	Hole 1	Hole 5
MP (Standard 8mm cassette tape)	Close	Close
HiMP (Hi8 cassette tape)	Close	Open
HiME (Hi8 cassette tape)	Open	Close

Cassette type and recording/ playback time

Cassette tape	Recording/playback time
P6-15MP	15 min.
E6-20HiME, P6-20HiMP	20 min.
P6-30MP	30 min.
P6-60HiME, P6-60HiMP/MP	60 min.
P6-90MP	90 min.
E6-120HiME, P6-120HiMP/MP	120 min.

When using the VTR in countries that do not use the NTSC system

If you prepare fully charged battery packs or the AC power adaptor which can be used in all areas with the local power supply of 100 V to 240 V, you can use the EVV-9000 in any country. However, there are two kinds of cassette tapes, due to the video systems, "E6-" or "P6-" for the NTSC color system, and "P5-" for the PAL color system. They differ in tape duration (recording/playback time). When a "P5-" tape is used in countries that use the NTSC system, the tape duration is as follows.

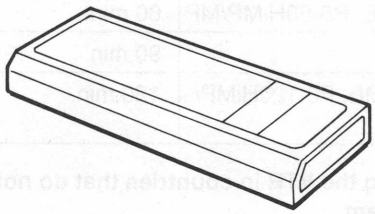
Cassette tape	Tape duration
P5-15	22 min.
P5-30	43 min.
P5-60	84 min.
P5-90	126 min.

Notes

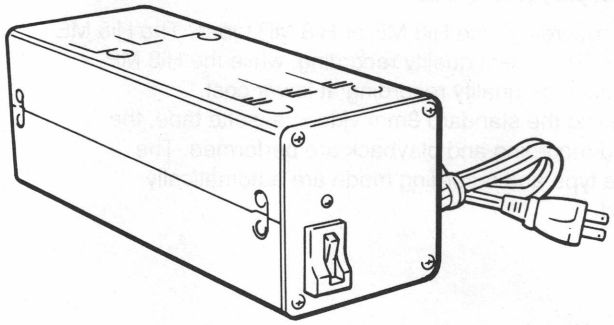
- Store the cassettes in their cases and keep them upright. This will keep dust out and prevent the tape unraveling.
- Never insert anything in the small holes on the rear of the cassette. These holes are used to sense the type and its thickness and whether the safety tab is out or in.

1-4. POWER SOURCE

The following battery packs or camera adaptor can be used with this unit.



NP-1A battery pack



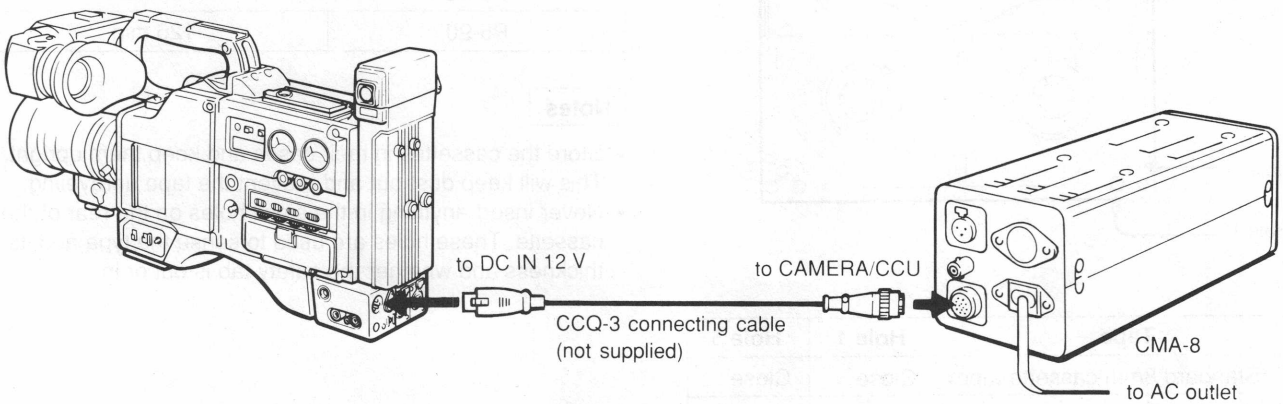
CMA-8 Camera adaptor for AC operation

Power is supplied to the video camera via the 50-pin connector.

Caution

When the power source is disconnected during recording or playback, immediately reconnect it. Otherwise, the tape may be damaged.

Use the CMA-8 (not supplied) camera adaptor.



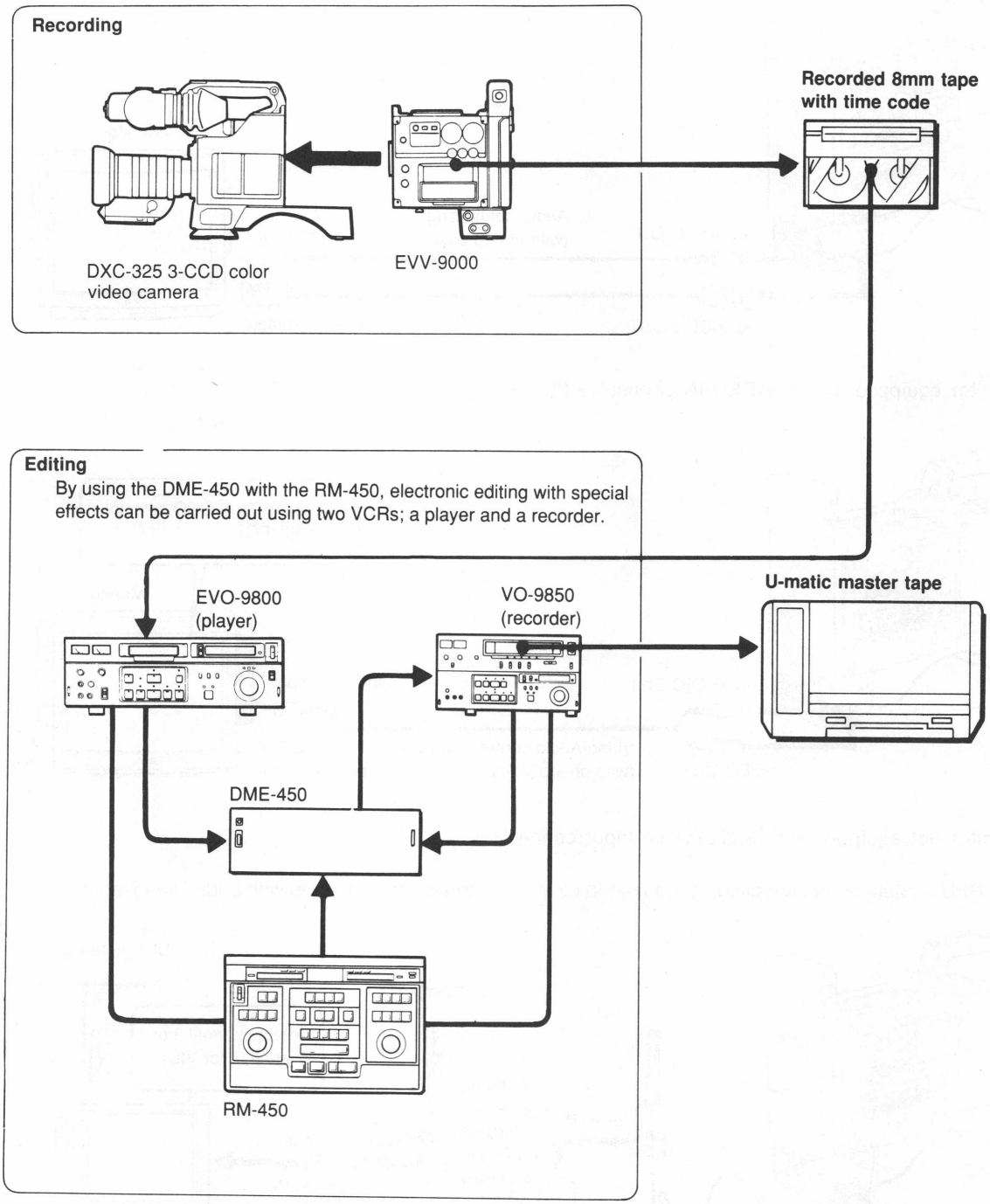
By connecting the CMA-8 camera adaptor to the DC IN 12V connector, the power source is automatically changed from the battery pack to the CMA-8 camera adaptor.

Caution

When changing the power source from the internal battery pack to the external AC power, set to stop mode and set the POWER switch on the VTR to OFF.

1-5. APPLICATION

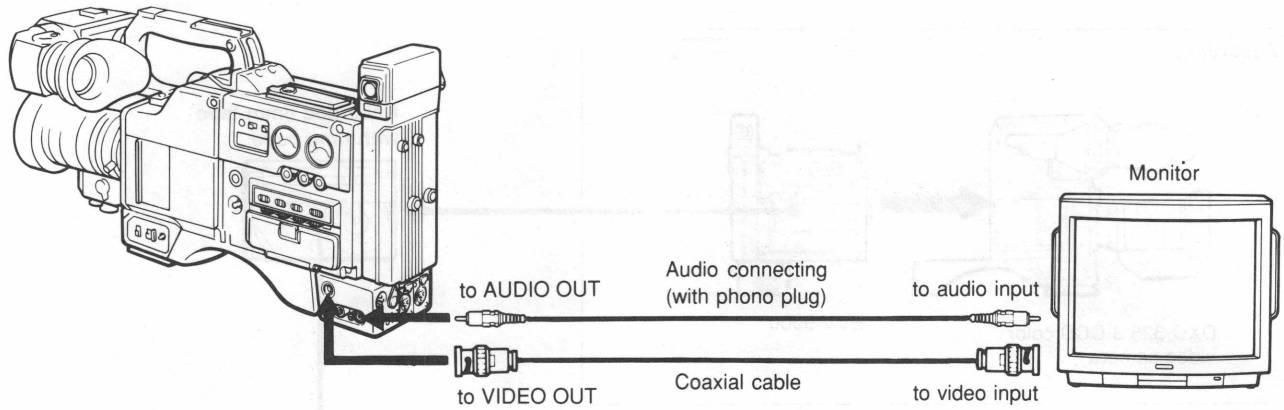
Example: To edit the recorded 8mm tape with time code to make up the master U-matic tape:



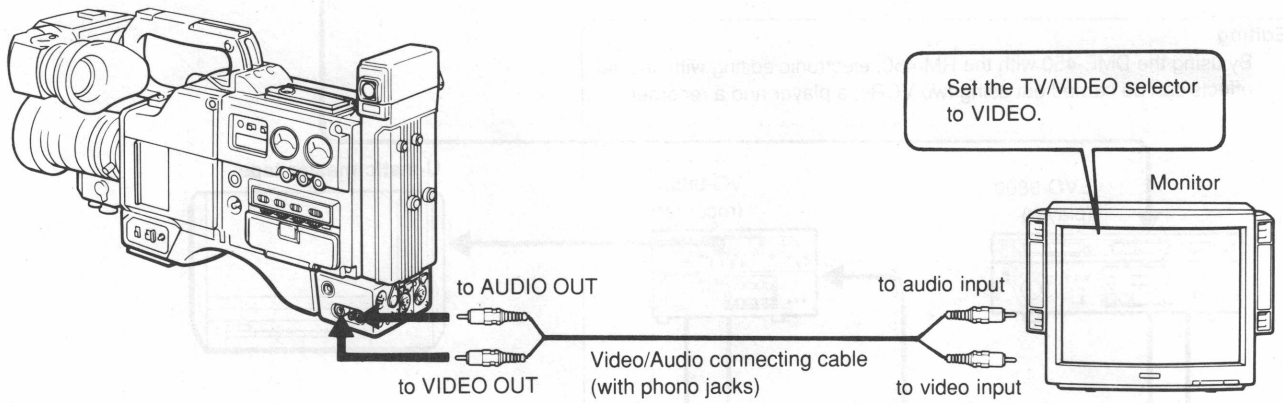
1-6. CONNECTING A MONITOR

The playback picture is monitored on the viewfinder screen and on the color monitor connected to the VTR.

Connecting a monitor equipped with a VIDEO IN connector (BNC)

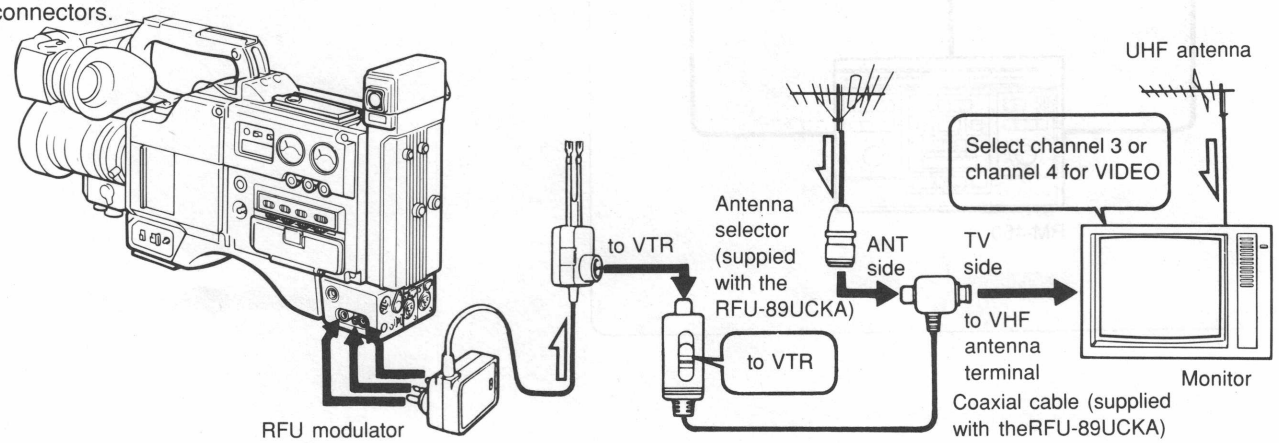


Connecting a monitor equipped with a VIDEO IN connector (Phono jack)



Connecting a monitor not equipped with audio/video input connectors

The RFU-89UCKA RFU modulator (not supplied) is required to connect a monitor not equipped with audio/video input connectors.



1-7. WARNING SYSTEM

The warning cursors and lamp, warning beep and tally lamps of camera serve to advise you of the VTR statuses indicated in the table below. In the rightmost column are described the corresponding tape transport statuses and resulting influences especially on the recording function. In general, if the tape transport stops, the VTR cannot continue the current operation. Actions you need to take in such case are also indicated in the same column.

Warning cursor	Warning lamp	Warning beep	VTR status	Camera tally lamps REC/TALLY	Tape transport status/Necessary action
RF	▬	Blinks at 4 Hz	●))) ●))) ●))) ●)))	Head clogging Defective recording system		The VTR continues to record, but recording may not be performed correctly. (This status is detected when the VTR is set in the record mode again from the recording pause mode.
	(In record mode)					Clean the head.
SERVO	▬	Blinks at 4 Hz	●))) ●))) ●))) ●)))	Irregularity in servo		Tape transport doesn't stop, but recording may not be performed correctly.
		(In record mode)		(In record mode)		Check the connections.
HUMID	▬	Lights up	●)))))))

SECTION 2
SERVICE INFORMATION

2-1. ASSEMBLY OF VTR AND CAMERA

Assemble VTR and camera with four fixing screws as shown in fig. B.

(1) Install a guide shaft (supplied accessory of VTR) to the VTR.

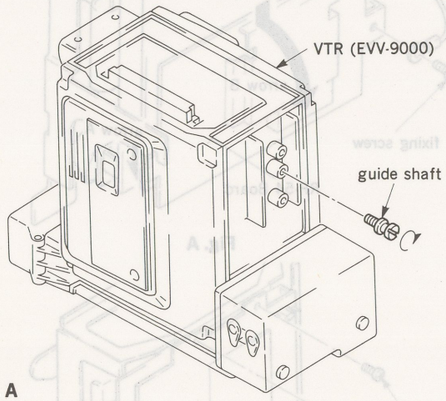


Fig. A

(2) Put the guide shaft of the VTR into guide hole of the camera (DXC-325). While moving the VTR in the direction of the arrow, connect 50P connector.

(3) Assemble the VTR and camera with four fixing screws (supplied accessory of VTR).

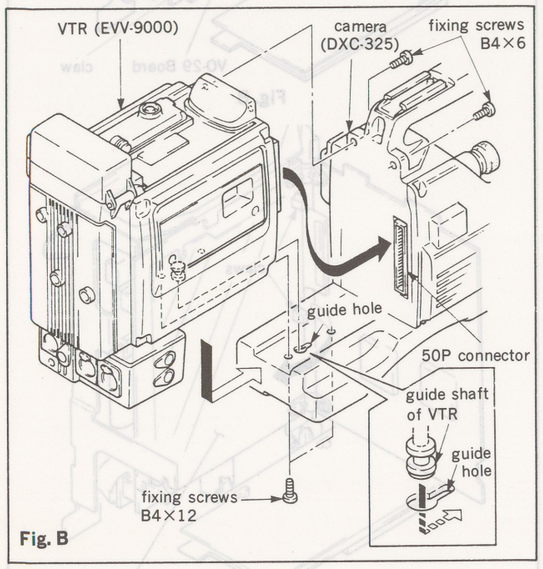


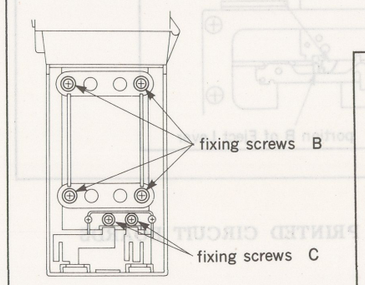
Fig. B

If there isn't a hole on a camera (DXC-325), use only four fixing screws. Do not use the guide shaft.

2-2. REMOVAL AND INSTALLATION OF CABINET

Battery Case

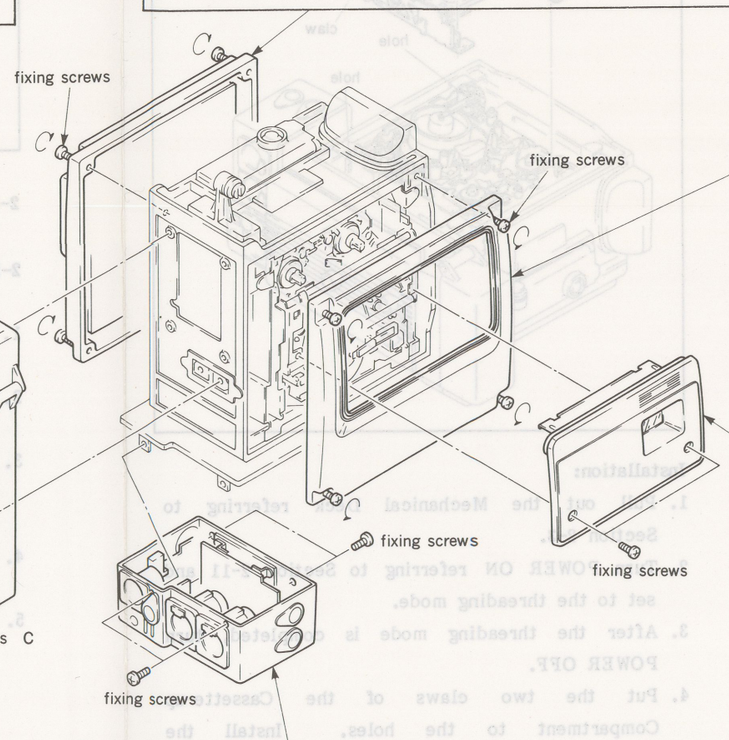
(1) Remove fixing screw A and remove the Battery Case Lid in the direction of the arrow.
(2) Remove four fixing screws B as shown in the figure.
(3) Loosen two fixing screws C and remove the Battery Case. The fixing screws C cannnot remove from the Battery Case because of stoppers.



Side Panel (Right) Assembly

(1) Loosen four fixing screws and open the Side Panel (Right) Assembly. The four fixing screws cannot remove from the Side Panel (Right) Assembly because of stoppers.
(2) Remove the two fixing screws of the Shield Plate and open the AU-136 Board.
(3) Disconnect the connector CN11 of the speaker harness, and CN12 and CN13 of the meter harness from the FP-37 Board.
(4) Disconnect the connector CN1 of the power switch harness from the PS-209 Board.
(5) Remove the five knobs (PCM1, PCM2, AFM, MONITOR, ALARM) from outside of the Side Panel (Right) Assembly without making damage.
(6) Remove three fixing screws and two board supports of the FP-37 Board. Remove the AU-136 and FP-37 Boards from the Side Panel (Right) Assembly.

When installing, be careful to pinch harnesses with the Side Panel (Right) Assembly.



Side Panel (Left) Assembly

(1) Remove Cassette Lid.
(2) Loosen four fixing screws and remove Side Panel (Left) Assembly. The four fixing screws cannot remove from the Side Panel (Left) Assembly because of stoppers.

Install first the Side Panel (Left) Assembly and then install the Cassette Lid.

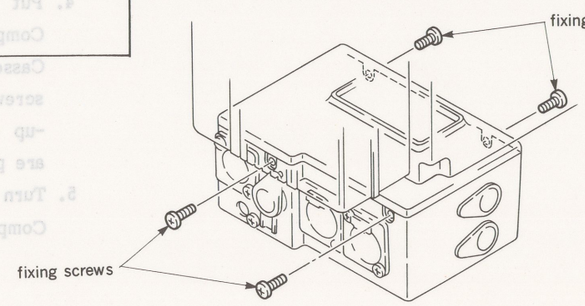
Cassette Lid

(1) Remove the two fixing screws and remove the Cassette Lid.

Install first the Side Panel (Left) Assembly and then install the Cassette Lid.

Connector Box

(1) Pull out the Mechanical Deck Block referring to Section 2-3. Disconnect the connector CN2 (3pin) on the PS-209 Board.
(2) Open the Side Panel (Right) Assembly.
(3) Disconnect the connectors CN1 (3pin), CN2 (6pin), CN3 (2pin) on the FP-37 Board.
(4) Remove four fixing screws and pull out the Connector Box.
(5) Disconnect the connectors CN5 (6pin) on the VA-96 Board, and CN3 (7pin) and CN6 (7pin) on the VA-102 Board.
(6) While being careful not to cut harness, remove the Connector Box.

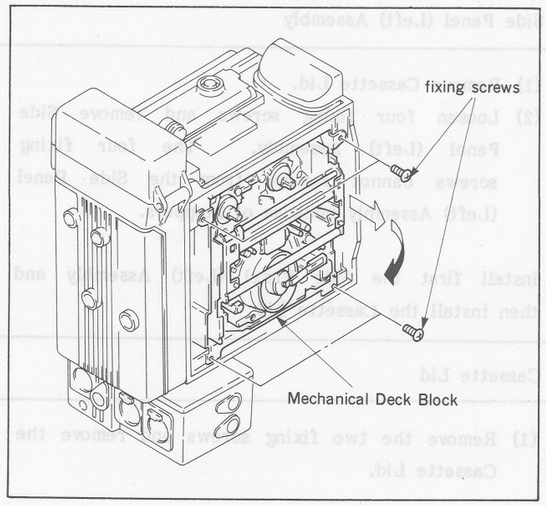


2-1

2-3. REMOVAL OF MECHANICAL DECK BLOCK

1. Remove the Cassette Lid and Side Panel (Left) Assembly referring to Section 2-2.
2. Remove four fixing screws as shown in the figure.
3. Pull out Mechanical Deck Block Assembly without making damage.
4. When replacing major parts, disconnect the following connectors and remove the Mechanical Deck.

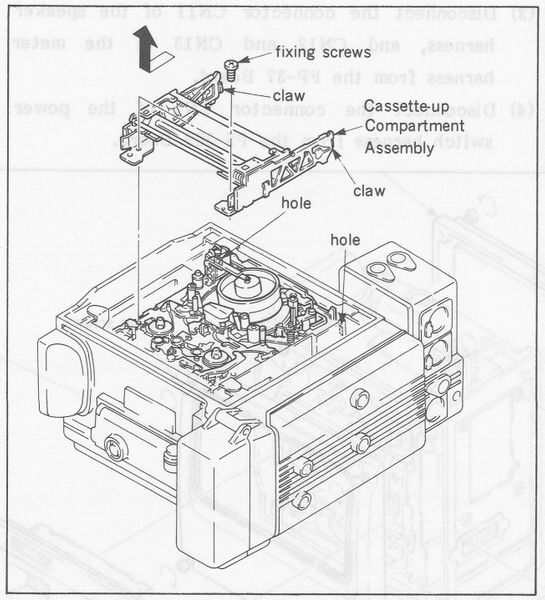
CN805/RP-54 Board
CN401, CN402, CN403/VO-28 Board
CN004, CN005, CN006, CN007, CN008/SS-43 Board



2-4. REMOVAL AND INSTALLATION OF THE CASSETTE -UP COMPARTMENT

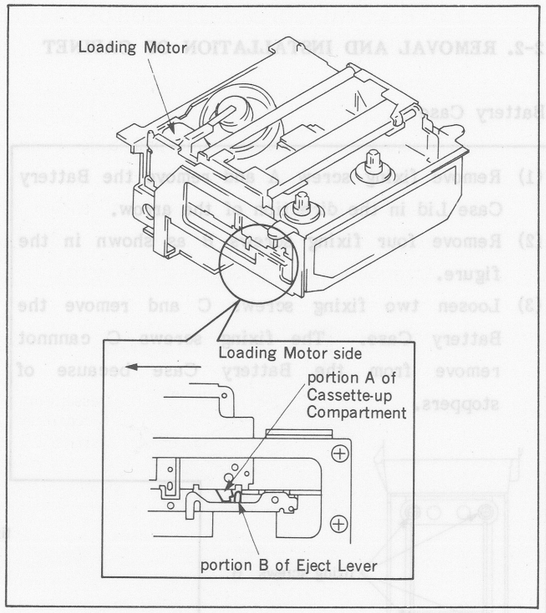
Removal:

1. Remove the Cassette Lid and Side Panel (Left) Assembly referring to Section 2-2.
2. Remove two fixing screws as shown in the figure and remove Cassette-up Compartment Assembly in the direction of the arrow.



Installation:

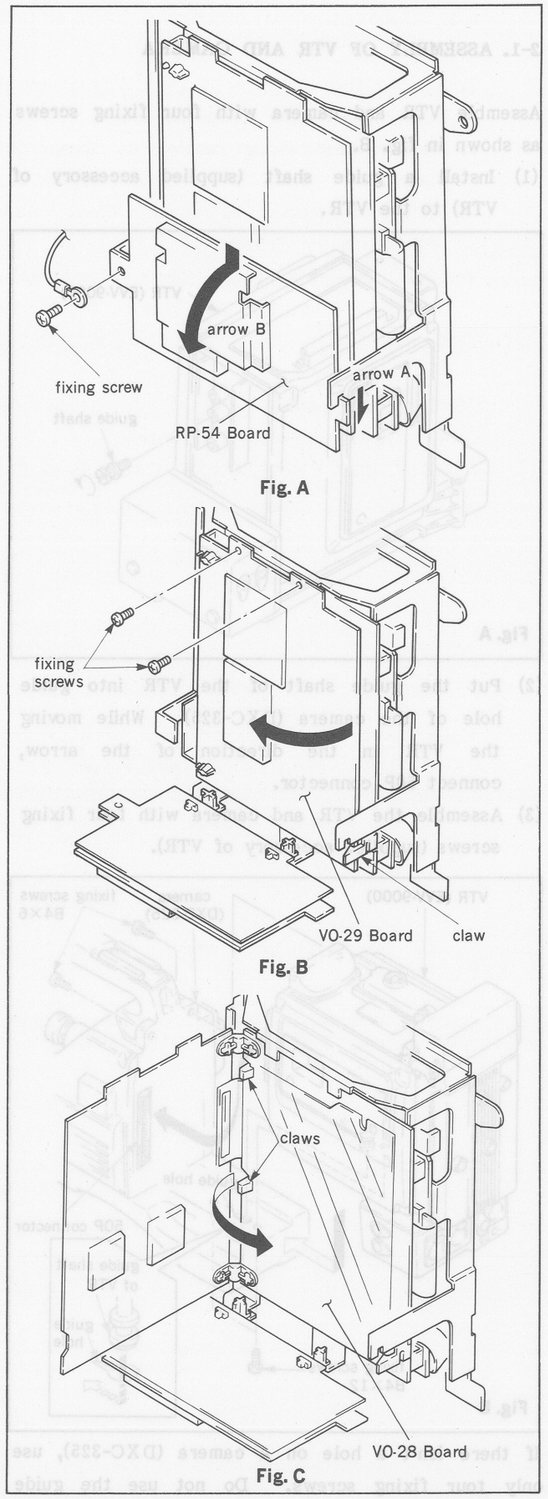
1. Pull out the Mechanical Deck referring to Section 2-3.
2. Turn POWER ON referring to Section 2-11 and set to the threading mode.
3. After the threading mode is completed, turn POWER OFF.
4. Put the two claws of the Cassette-up Compartment to the holes. Install the Cassette-up Compartment with two fixing screws. Check that the A portion of Cassette -up Compartment and B portion of Eject Lever are placed as shown in the figure.
5. Turn POWER ON and check that the Cassette-up Compartment is up by pushing the EJECT button.



2-5. SERVICE OF PRINTED CIRCUIT BOARDS

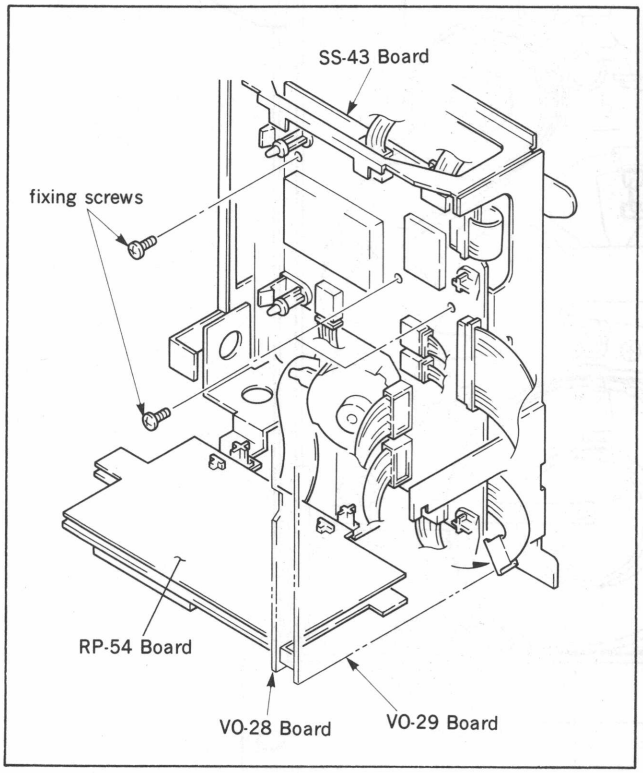
2-5-1. Removal of VO-28, VO-29 and SS-43 Boards

1. Remove the Cassette Lid and Side Panel (Left) Assembly referring to Section 2-2.
2. Pull out the Mechanical Deck Block referring to Section 2-3.
3. Remove a fixing screw as shown in fig. A and open the RP-54 Board in the direction of the arrows A and B in order.
4. Remove two fixing screws and release the claw. Open the VO-29 Board. (Fig. B)
5. Release two claws as shown in fig. C and open the VO-28 Board.



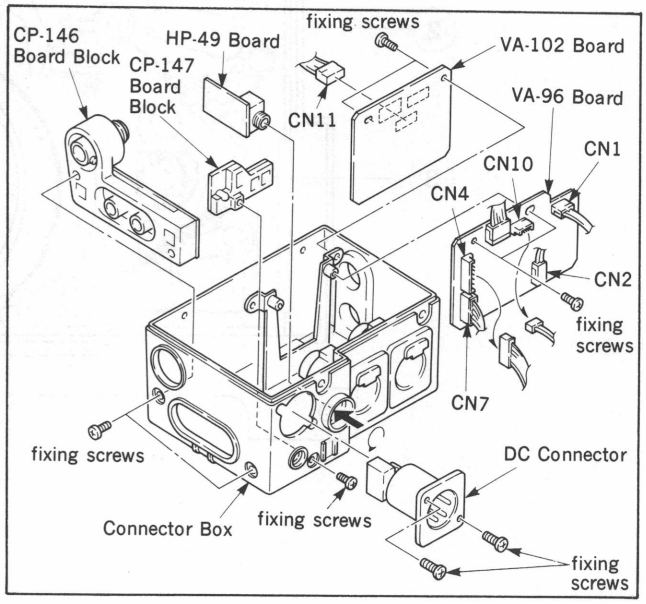
6. Disconnect the FP-161 Flexible Board (CN010) on the SS-43 Board from the Capstan Motor and disconnect the connectors CN002, CN011, CN012, CN003, CN001 on the SS-43 Board.
7. Disconnect the connectors CN803, CN804 on the RP-54 Board.
8. Remove three fixing screws as shown in the figure and remove the SS-43 Board with the VO-28 and VO-29 Boards.

   Note: Do not lose the two Board Spacers B between the SS-43 Board and Mechanical Deck Block.



2-5-2. Removal of CP-146, CP-147, HP-49, VA-96 and VA-102 Boards

1. Remove the Connector Box referring to Section 2-2.
2. Remove two fixing screws as shown in the figure and remove DC Connector.
3. Disconnect the connector CN10 on the VA-96 Board.
4. Remove two fixing screws and pull out the VA-96 Board. Disconnect the connectors CN1, CN2, CN4 and remove the VA-96 Board.
5. Remove two fixing screws. Remove the VA-102 Board and disconnect the connector CN11.
6. Remove two fixing screws and remove the CP-146 Board Block.
7. Remove fixing screw and remove the CP-147 Board Block.
8. Turn nut of jack counterclockwise with a pair of tweezers from the hole in the diredtion of the arrow and remove the HP-49 Board.



2-5-3. Opening of FP-37 and AU-136 Boards

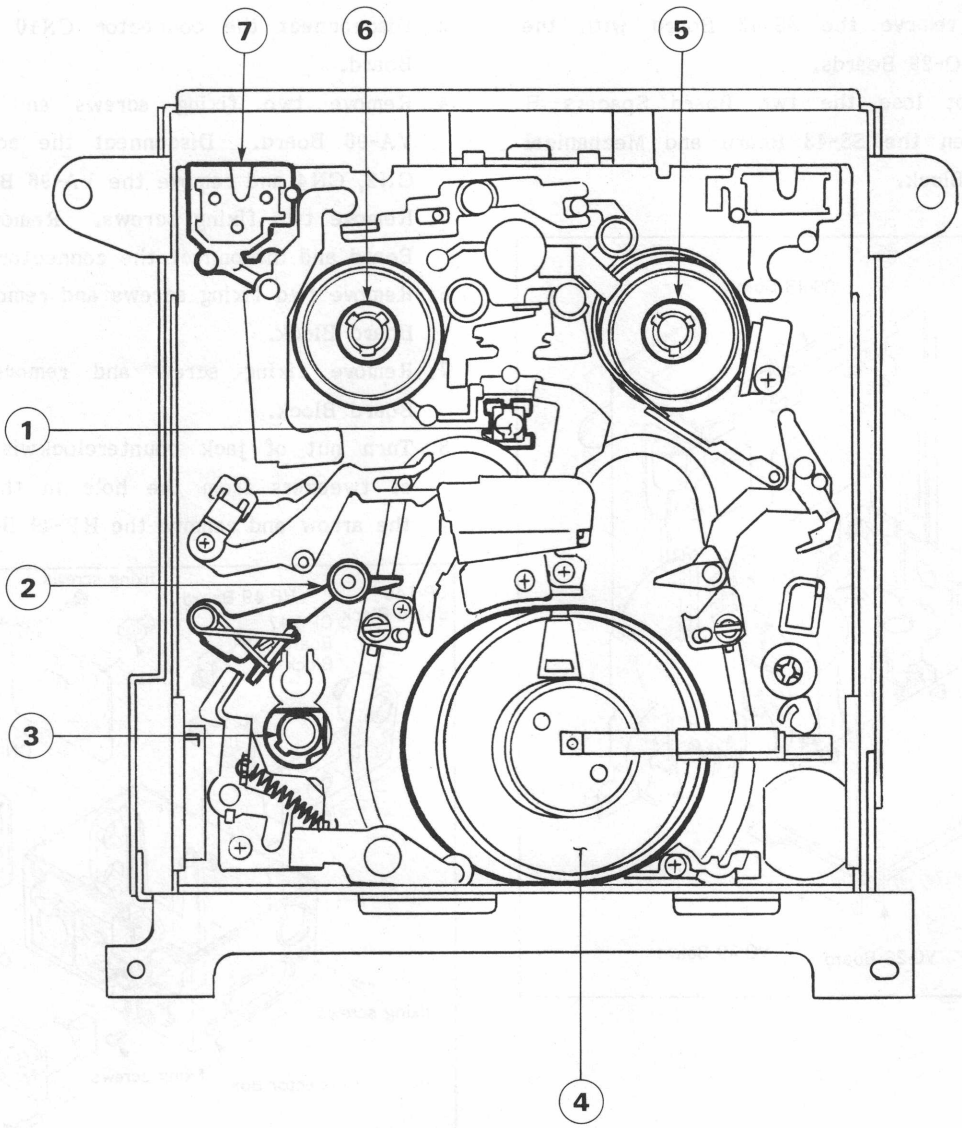
1. Loosen four fixing screws and open the Side Panel (Right) Assembly.
2. Remove two fixing screws of the Shield Plate and open the AU-136 Board.

Removal procedure of FP-37 Board refers to Section 2-2.

2-6. LOCATION OF MAIN PARTS

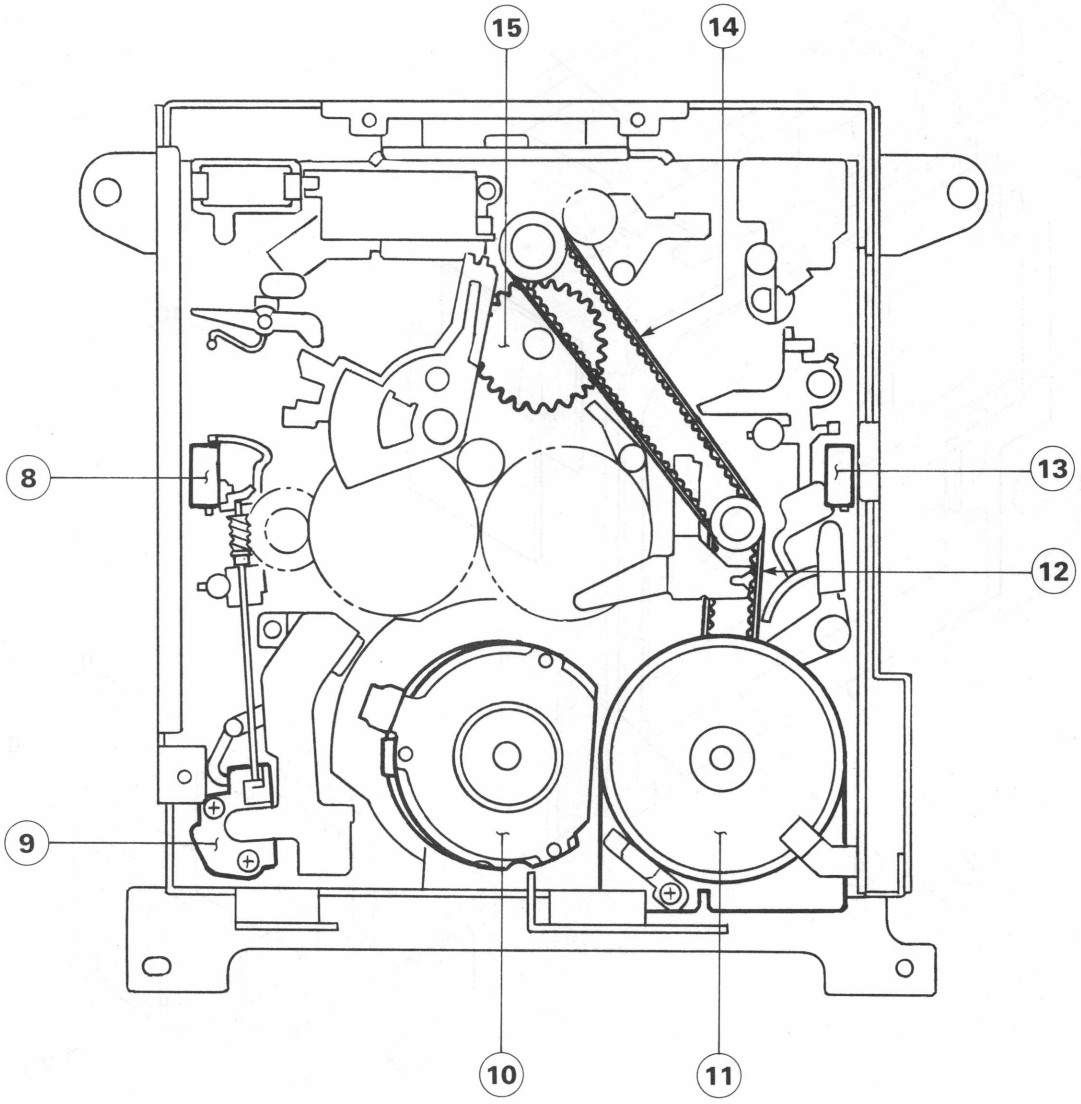
2-6-1. Location of Main Mechanical Parts/Components

TOP VIEW



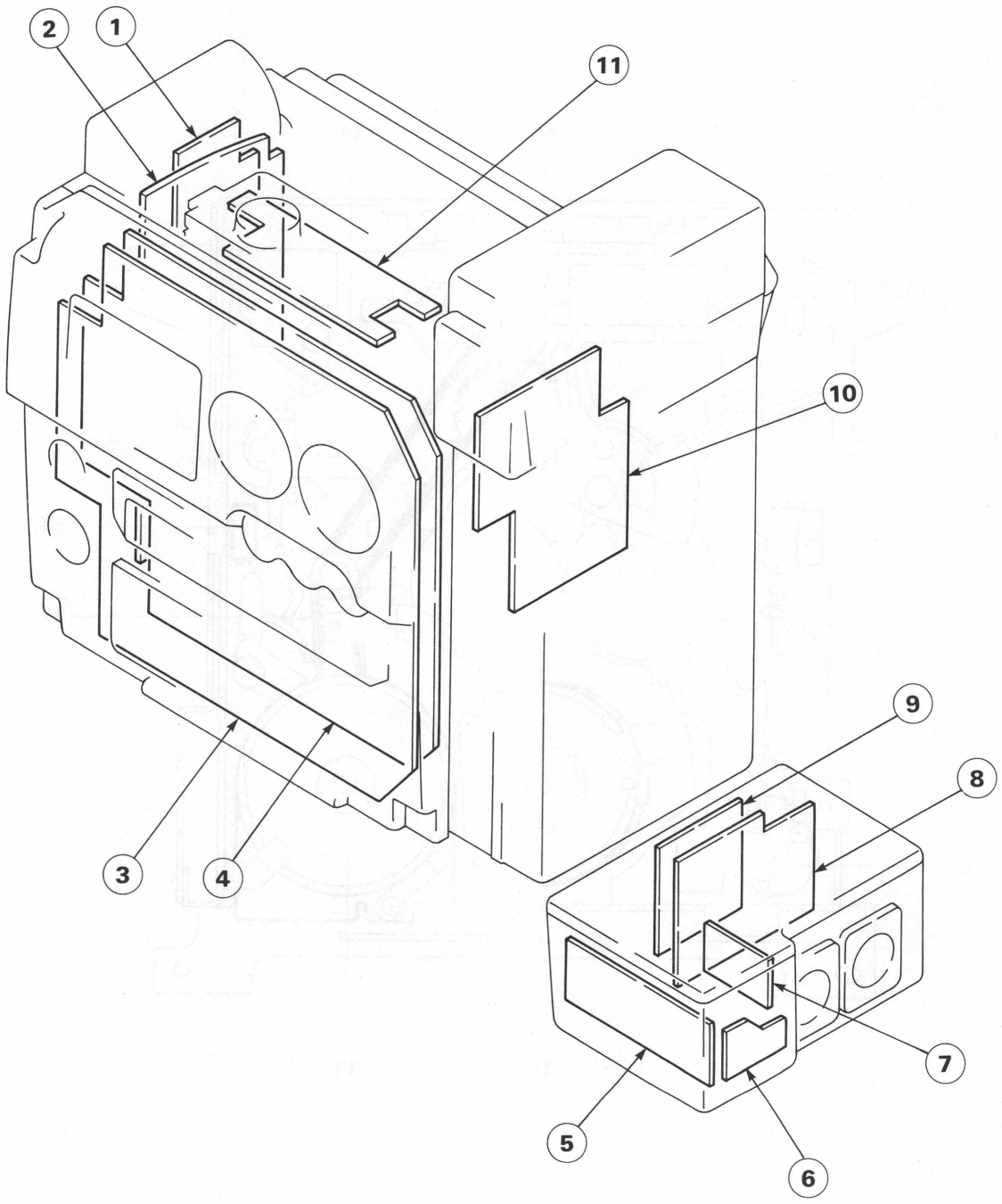
① Tape Top/End LED
② Pinch Roller Assembly
③ Capstan Shaft
④ Drum Assembly
⑤ S Side Reel Table
⑥ T Side Reel Table
⑦ RECOG. switch

BOTTOM VIEW



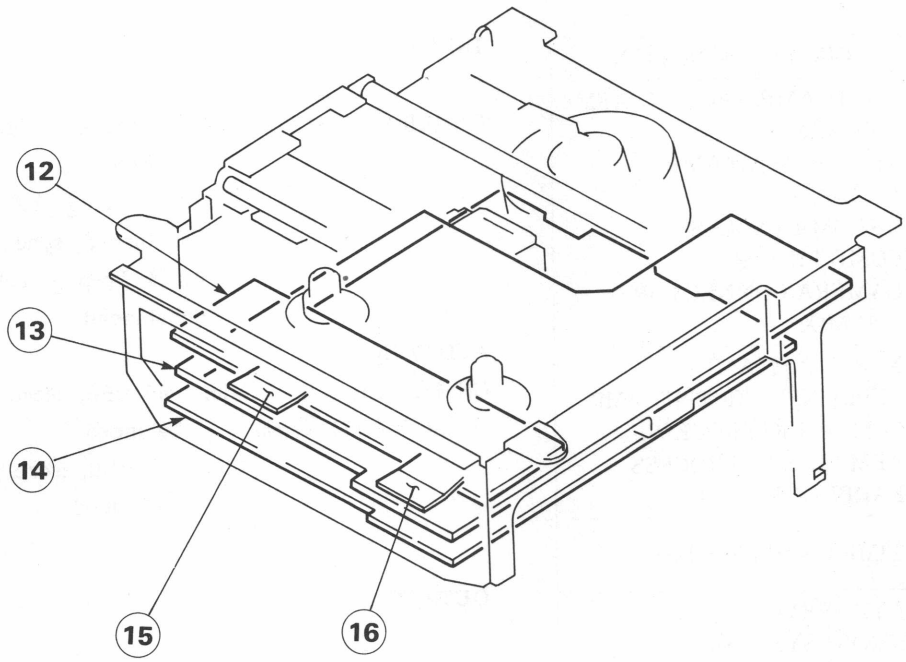
⑧ Tape End Sensor
⑨ Loading Motor Assembly
⑩ Drum Assembly
⑪ Capstan Motor
⑫ Timing Belt S
⑬ Tape Top Sensor
⑭ Timing Belt L
⑮ RK Gear Assembly

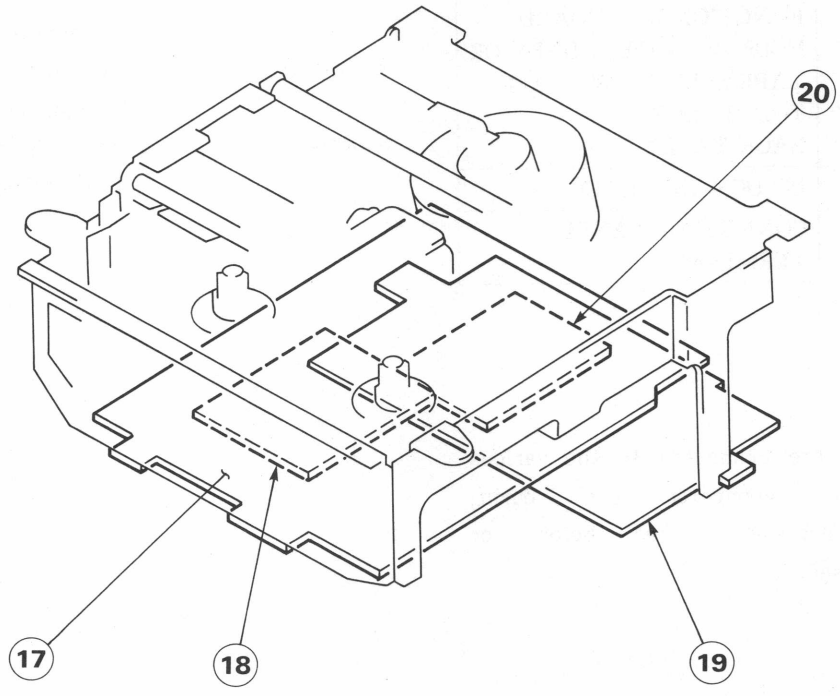
2-6-2. Location of Printed Circuit Boards



(1) CC-43 Board
(2) SY-153 Board
(3) FP-37 Board
(4) AU-136 Board
(5) CP-146 Board
(6) CP-147 Board
(7) HP-49 Board
(8) VA-96 Board
(9) VA-102 Board
(10) PS-209 Board
(11) KY-191 Board

MECHANICAL DECK





(12) CC-44 Board
(13) SS-43 Board
(14) VO-28 Board
(15) FP-89 Flexible Board
(16) FP-90 Flexible Board
(17) VO-29 Board
(18) HD-8 Board
(19) RP-54 Board
(20) HR-3 Board

2-7. PRINTED CIRCUIT BOARDS

SYSTEM	BOARD	CIRCUIT FUNCTION
VIDEO	RP-54	HEAD AMP, REC Y/C/AFM/ ATF MIX
	HR-3	REC/PB HEAD AMP
	VO-28	Y PROCESS
	VO-29	CHROMA PROCESS
	HD-8	COMB FILTER
	CC-43	CAMERA CONNECTOR
	VA-102	Y/C MIX
AUDIO	VA-96	XLR INPUT AMP
	FP-37	AUDIO INPUT/OUTPUT AMP
	AU-136	PCM AUDIO PROCESS, AFM SIGNAL PROCESS
	HP-49	EARPHONE JACK
TIME CODE	FP-37	TIME CODE PROCESS
SYSCON SERVO	AU-136	ATF SERVO
	SS-43	SERVO SYSTEM, MECHANISM CONTROL
	SY-153	SYSTEM CONTROL
	KY-191	FUNCTION KEY BOARD
	FP-89	MODE SW, TAPE END SENSOR
	FP-90	TAPE SELECT SW, TAPE TOP SENSOR
	CP-147	BACK TALLY
POWER	PS-209	DC-DC CONVERTER
Others	CP-146	CONNECTOR PANEL
	CC-44	TERMINAL

2-8. CONNECTORS

When external cables are connected to the various connectors of the connector box during maintenance, the hardware listed below or equivalents must be used.

PANEL INDICATION	CONNECTOR
VIDEO OUT (BNC)	1-560-069-11 PLUG, BNC, MALE
AUDIO IN CH-1	1-508-084-00
AUDIO IN CH-2	CONNECTOR, 3P, MALE
DC IN	1-508-362-00 PLUG, XLR, 4P, FEMALE
CAMERA	1-566-579-11 CONNECTOR, 50P, MALE

2-9. CONNECTOR INPUT/OUTPUT SIGNAL

INPUT

CAMERA VIDEO IN : Y/C separate signal from 50P connector
Y: 1.0 Vp-p ± 1.0 dB, 1k ohm, unbalanced, sync negative
C: 0.286 Vp-p ± 1.0 dB, 1k ohm, unbalanced

AUDIO IN
CH-1/L, CH-2/R (0 dBu = 0.775 Vrms)
Mic: -60 dBu, more than 3k ohm, balanced
Line: +4 dBu, more than 10k ohm, balanced

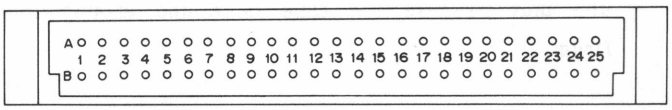
OUTPUT

VIDEO OUT : Composite signal
. 1.0 Vp-p ± 1.0 dB, 75 ohm, unbalanced, sync negative

AUDIO OUT : -10 dBu (at 47k ohm load), unbalanced

EARPHONE : Max -18 dBu (at 8 ohm load), level adjustable

50P CONNECTOR (CAMERA IN)



(EXT VIEW)

Pin No.	Signal	Pin No.	Signal
A1	GND(CHASSIS)	A14	CHROMINANCE IN(G)
B1	GND(CHASSIS)	B14	CHROMINANCE IN(X)
A2	MIC IN(Y)	A15	LIMINANCE IN(G)
B2	MIC IN(X)	B15	LIMINANCE IN(X)
A3	MIC IN(G)	A16	NC
B3	EARPHONE OUT(G)	B16	NC
A4	REC TALLY OUT	A17	NC
B4	EARPHONE OUT(X)	B17	NC
A5	CAMERA TRIGGER IN	A18	BATT ALARM OUT
B5	REC OFF OUT	B18	REC VIEW CONT IN
A6	NC	A19	NC
B6	NC	B19	NC
A7	NC	A20	NC
B7	NC	B20	NC
A8	NC	A21	NC
B8	NC	B21	GND
A9	NC	A22	UNREG(+12V)OUT
B9	NC	B22	UNREG(+12V)OUT
A10	PB VIDEO OUT(G)	A23	UNREG(GND)OUT
B10	PB VIDEO OUT(X)	B23	UNREG(GND)OUT
A11	NC	A24	NC
B11	PLAYBACK/CAMERA	B24	NC
	CONT PB ID OUT	A25	GND (CHASSIS)
A12	VBS(COQ)IN(G)	B25	GND(CHASSIS)
B12	VBS(COQ)IN(X)		
A13	VTR SAVE IN		
B13	NC		

2-10. SPARE PARTS

(1) The ⚠ -marked components are critical to safety. Replace only with same components as specified.

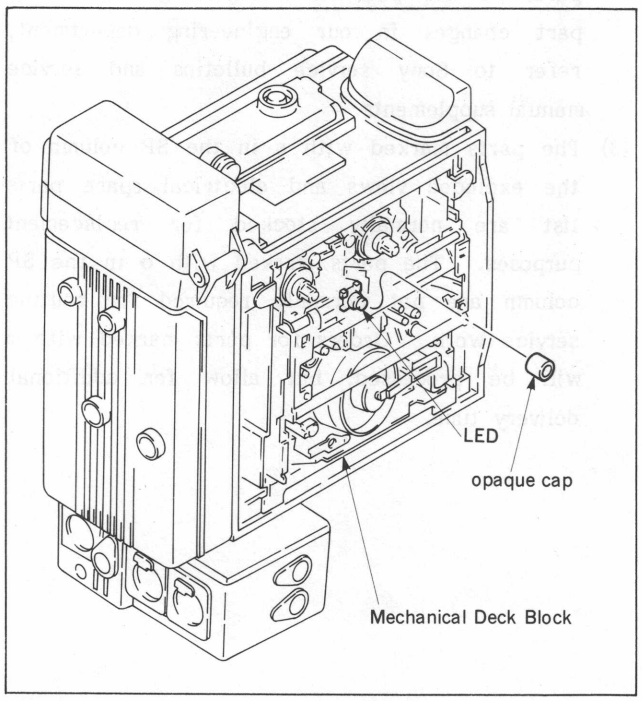
(2) Replacement parts supplied from the Sony Parts Center will sometimes have a different shape from the original parts. This is due to **accommodating the improved parts and/or engineering changes** or **standardization of genuine parts.** This manual's exploded views and electrical spare parts list indicate the part numbers of **the standardized gunuine parts at the present.** Regarding engineering part changes in our engineering department, refer to Sony service bulletins and service manual supplements.

(3) The parts marked with **s** in the SP column of the exploded views and electrical spare parts list are normally stocked for replacement purposes. The parts marked with **o** in the SP column are not normally required for routine service work. Orders for parts marked with **o** will be processed, but allow for additional delivery time.

2-11. HOW TO OPERATE THE UNIT WITHOUT CASSETTE TAPE (MUTING OF THE TAPE BEGINNING/END SENSORS)

When replacing mechanical parts, sometimes there is a case need to select modes without cassette tape inserting. Stop the Tape Beginning/End Sensors as follows and then operate the unit. If using the Mode Selector, it is not necessary to stop the Tape Beginning/End Sensors.

Put an opaque cap on the LED Assembly as shown in the figure.



2-12. CASSETTE TAPE REMOVAL PROCEDURE WHEN NORMAL EJECTION IS NOT POSSIBLE

. When the cassette tape cannot be ejected from the unit because the tape is wound around the Drum.

(1) Remove the Cassette Lid and Side Panel (L) Assembly referring to Section 2-2.

(2) Open the Side Panel (R) Assembly referring to Section 2-2.

(3) Remove the SS-43 Board referring to Section 2-5.

(4) Turn the worm gear of the threading motor in the direction of the arrow with a thin rod etc.. (Fig. A) Move that the No. 5 and No. 6 Guides of the Coaster (Right) Assembly in order to be placed as shown in fig. B. Check that the No. 5 and No. 6 Guides are not under the HC Roller Assembly.

(5) Remove the tape from the No. 1 thru No. 7 Guides and Pinch Roller Assembly.

Note 1: When removing the tape from the guides, be careful not to damage it.

Note 2: The mechanical chassis's sliding portion of the Coaster (Right) and (Left) Assemblies are smeared grease. Do not be adhered grease to the tape.

(6) Turn the rotor of the Capstan Motor in the direction of arrow A or B by hand and wind up the tape into the cassette. (Fig. C)

The direction of arrow A: wind up the tape to S side

The direction fo arrow B: wind up the tape to T side

(7) Push the arrow of lock lever by hand as shown in fig. D and eject the cassette tape.

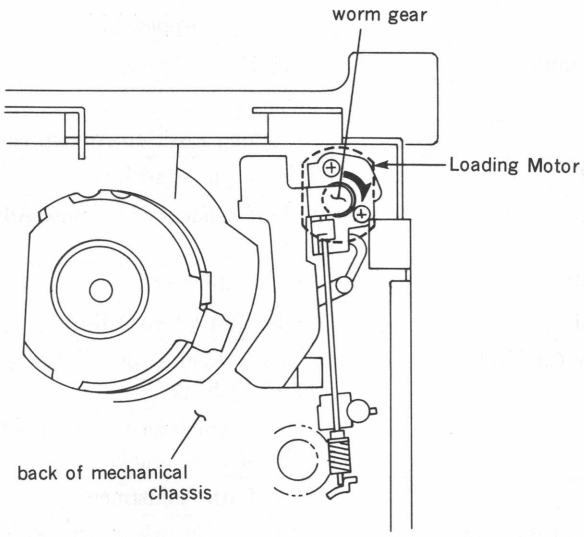


Fig. A

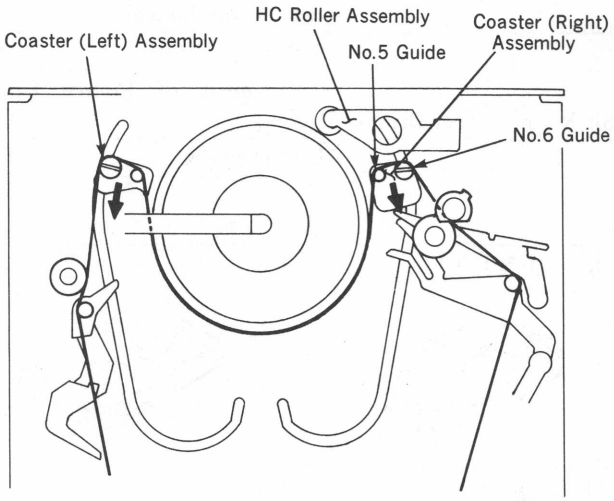


Fig. B

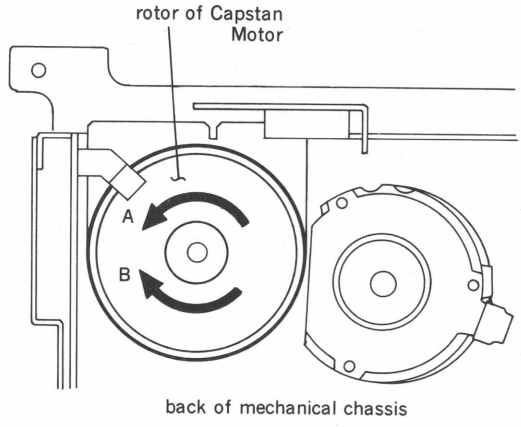


Fig. C

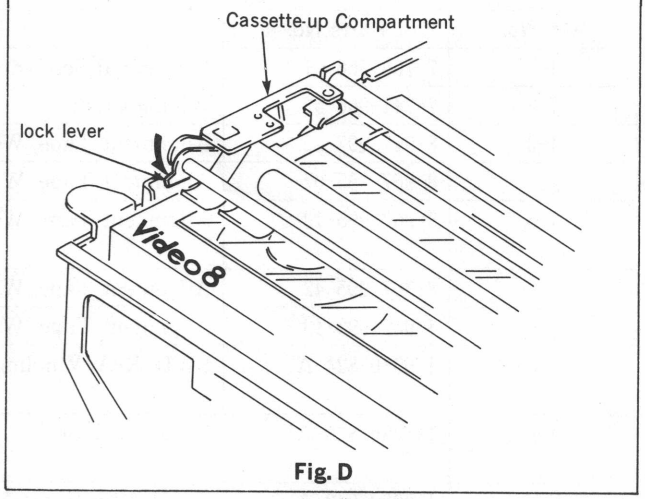
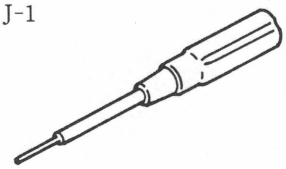


Fig. D

2-13. FIXTURE

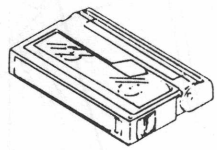
Ref. No.	Parts No.	Description	Application
J-1	7-700-766-01	Hexagonal Screwdriver (0.89mm)	Tape Path Adjustment
J-2	7-741-900-53	Wiping Cloth	Cleaning
J-3	8-967-992-12	Alignment Tape, WR2-3NS	Switching Position Adjustment
J-4	8-967-995-02	Alignment Tape, WR5-1NP	Tape Path Adjustment
J-5	8-967-995-13	Alignment Tape, WR5-7NE	Video Frequency Response Adjustment
J-6	8-967-995-42	Alignment Tape, WR5-5NSP	Video Adjustment
J-7	8-967-995-43	Alignment Tape, WR5-8NSE	Audio and Video Adjustment (SP)
J-8	J-6080-824-A	FWD, REV Winding Torque Cassette	S and T Reel Tables Winding Torque Check
J-9	J-6080-825-A	Mode Selector	Check, Adjustment and Replacement of Mechanical
J-10	J-6080-840-A	Small Adjustment Mirror	Tape Path Adjustment
J-11	J-6082-021-A	Mode Selector III Conversion Connector	Check, Adjustment and Replacement of Mechanical
J-12	J-6082-023-A	Mode Selector III Panel	Check, Adjustment and Replacement of Mechanical
J-13	Y-2031-001-1	Cleaning Fluid	Cleaning
J-14	———	Rotary Drum Tool (supplied accessory of Repair Rotary Upper Drum)	Replacement of Rotary Upper Drum
J-15	Comercially Sold	Head Degausser	Head Degauss

J-1

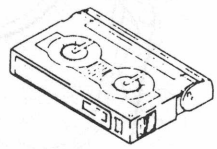


J-2

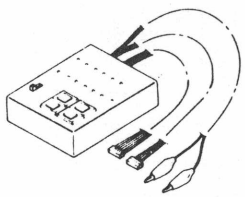
J-3, J-4, J-5, J-6, J-7



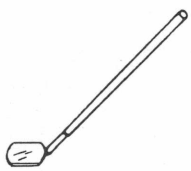
J-8



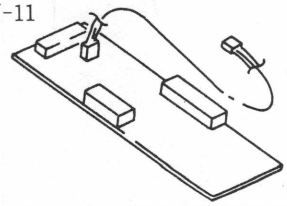
J-9



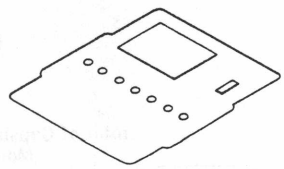
J-10



J-11



J-12

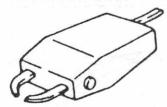


J-13

J-14

(Supplied accessory of Repair Rotary Upper Drum)

J-15

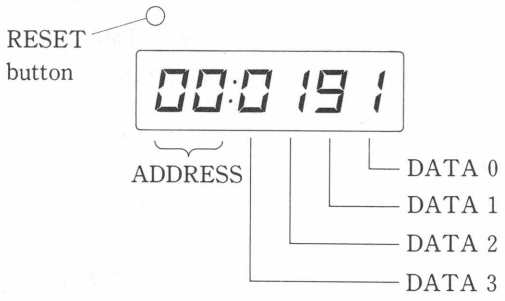


2-14. SELF DIAGNOSTIC FUNCTION

This model equips a Self Diagnostic Mode for function check. The Self Diagnostic Mode has 31 kinds of Address Codes. Perform the function check referring to the Address Codes and make the most of them for maintenance, check and repair.

2-14-1. Operation

The adress and deta are displayed on LCD DISPLAY at Side Panel (Left).



DATA 0-3 : Refer to Table 1.

SELF DIAG switch: setting of Self Diagnostic
RESET button: select of adress code

[Operation procedure]

1. Turn the SELF DIAG switch to ON.

2. Press the RESET button and select the address code.
   . Every time the RESET button is pressed, the address is added to one.

   00 → 01 ---→ 0A ---→ 1d → (1E)

   . How to return to initial address from others
   Press continuously the RESET button or turn the SELF DIAG switch to ON after turning it to OFF.
3. After completing the check, be sure to turn the SELF DIAG switch to OFF.

Note: ADDRESS [1E]

The address [1E] is an aging mode. Never use it usually.

If setting the address [1E], the unit put into the aging mode having priority over operation functions.

Reference: How to putting into the aging mode

Press the RESET button more than 2 seconds into the address [1d].

Aging mode

REC → TAPE END → REW → TAPE TOP

REPEAT

2-14-2. Contents fo Address and Data

. When the unit functions proparly, each data is displayed as described in the table. If some trouble happens, the data chenges from 1 to 0 or 0 to 1. Check the checking points described in the table. If there is not checking point in the table, perform check as situation because it caused by some defects.

※ : Perform the check with a camera (DXC-325).

( ): checking point for trouble

Table 1.

ADDRESS	DATA 3	DATA 2	DATA 1	DATA 0
00	FINAL MODE (Refer to Table 2.)		CURRENT MODE (Refer to Table 2.)	
01	——		SLACK MODE (Refer to Table 2.)	
02	LAST EMERGENCY (Refer to Table 3.)			
03	PRESENT EMERGENCY (Refer to Table 3.)			
04	MODE SWITCH CODE (Refer to Table 4.)			
05	——	1 POWER DOWN IN (IC1-47, 53/SY-153)	1 DEW IN (IC1-48/SY-153)	1 POWER DOWN IN (IC1-47, 53/SY-153)
06	0 SYSTEM RESET OUT (IC1-38/SY-153)	0 FF LAMP OUT (IC1-35/SY-153)	0 PLAY LAMP OUT (IC1-36/SY-153)	0 REW LAMP OUT (IC1-37/SY-153)
07	——	——	——	1 POWER ON OUT (IC1-16/SY-153)
08	——	——	0 ※ REC REVIEW IN (IC1-11/SY-153)	0 ※ CAMERA TRIGGER IN (IC1-12/SY-153)
09	1 REC OFF OUT (IC1-5/SY-153)	0 ※ BATTERY ALARM OUT (IC1-6/SY-153)	1 ※ PB ID OUT (IC1-7/SY-153)	0 ※ REC TALLY OUT (IC1-8/SY-153)
0A	1 ※ Y DETECT IN (IC1-61/SY-153)	0 POWER SWITCH OFF IN (IC1-62/SY-153)	0 ※ BATTERY END IN (IC1-63/SY-153)	0 BATTERY BEFORE END IN (IC1-64/SY-153)
0b	——	0 TEST 3 IN (IC1-75/SY-153)	0 TEST 2 IN (IC1-76/SY-153)	0 TEST 1 IN (IC1-77/SY-153)
0C	——	——	1 AUDIO MUTE (IC405-12/VO-28)	1 VIDEO MUTE (IC405-11/VO-28)
0d	1 Hi8-MODE (IC405-4/VO-28)	1 ME TAPE (IC405-5/VO-28)	——	——
0E	1 STOP EMERGENCY 2	1 TAPE END (Tape End Sensor)	1 BATTERY END	1 STOP EMERGENCY 1
0F	1 ※1CH CLOG	1 ※2CH CLOG	1 TAPE IN	1 TAPE LOADING (1) UNLOADING (1)

ADDRESS	DATA 3	DATA 2	DATA 1	DATA 0
10	——	1 ※ TAPE BEFORE END (Reel FG)	——	——
11	1 PB LP (IC001-59/SS-43)	1 PB Hi8 (IC001-41/SS-43)	1 TAPE END (SW) (IC001-45/SS-43)	1 TAPE TOP (SW) (IC001-46/SS-43)
12	——	1 SHUTTLE	1 ※ CLOG	1 VA PB (IC001-14/SS-43)
13	1 Hi8 MP TAPE (RECOG switch)	——	1 ME TAPE (RECOG switch)	1 MISS REC (cassette tape)
14	——	1 MECHA SW 2 (mode switch)	1 MECHA SW 1 (mode switch)	1 MECHA SW 0 (mode switch)
15	1 CASSE-CON UP (cassette - up compart-ment switch)	1 ※ CAPSTAN LOCK	1 ※ DRUM LOCK	——
16	——	——	1 ※ REC Hi8	——
17	——	1 TAPE UNLOAD	1 DEW STATUS	0 ※ REC SP
18	——	——	——	——
19	1 HOURS METER (IC502-79/FP-37)	——	TEST MODE (Refer to Table 5.)	
1A	——	——	——	——
1b	——	——	1 PB KEY	1 STOP KEY
1C	1 EJECT KEY	——	REW KEY	FF KEY
1d	——	——	——	——
1E	AGING MODE (Never use this address usually)			

. When tape slack has happened, check as follows.

1. ADDRESS 01 : It is possible to see the mode that has happened tape slack.

⇩

2. ADDEESS 02 : It is possible to see the cause of tape slack.

⇩

3. ADDEESS 03 : During use the unit, if the tape slack has happened because of some causes, the causes are displayed in order by pressing the RESET button.

<FINAL MODE, CURRENT MODE, AND SLACK MODE>

. It shows operation system and tape path system modes. If trouble happens, [B2] or [C2] is displayed. Perform check as trouble situation.

Table 2.

MEANING DISPLAY	DISPLAY	MEANING DISPLAY	DISPLAY
EJECT	01	EMERGENCY2 STOP	C2
EJECTED DEW	11	FF	03
UNLOAD STOP	31	REW	83
TAPE UNLOADING	91	REC	04
NORMAL STOP	02	REC PAUSE	14
TAPE LOADING	12	REC REVIEW FORWARD	85
BATTERY DOWN STOP	32	REC REVIEW REVERSE	95
DEW STOP	42	PB	06
TAPE END STOP	62	FORWARD SEARCH	46
TAPE TOP STOP	72	REVERSE SEARCH	56
EMERGENCY1 STOP	B2		

<PRESENT/LAST EMERGENCY>

PRESENT EMERGENCY : trouble that is happening now
LAST EMERGENCY : trouble that happened last time

Table 3.

TROUBLE	PRESENT EMG DISPLAY	LAST EMG DISPLAY
Normal operation	00 00	00 00
Loading Motor	00 01	00 01
REEL FG trouble when unthreading	00 02	00 02
REEL FG trouble except when unthreading	00 03	00 03
Capstan trouble	00 04	00 04
DRUM PG trouble when the Drum rises up (0)	00 05	00 05
DRUM PG trouble when the Drum rises up (1)	01 05	01 05
DRUM PG trouble when the Drum rises up (2)	02 05	02 05
No Drum PG when the Drum rises up (0)	00 06	00 06
No Drum PG when the Drum rises up (1)	01 06	01 06
No Drum PG when the Drum rises up (2)	02 06	02 06
DRUM FG trouble when the Drum rotating (0)	00 07	00 07
DRUM FG trouble when the Drum rotating (1)	01 07	01 07
DRUM FG trouble when the Drum rotating (2)	02 07	02 07
No DRUM PG when the Drum rotating (0)	00 08	00 08
No DRUM PG when the Drum rotating (1)	01 08	01 08
No DRUM PG when the Drum rotating (2)	02 08	02 08
Phase trouble when the Drum rotating (0)	00 09	00 09

(1) Tape Threading mode
(2) Tape Unthreading mode
(0) Others

<MODE SWITCH CODE (mechanical mode)>

. When the mechanical movement is stopped, the mode is displayed. When some trouble happens, check the loading motor, capstan motor, mechanical drive system and operation button system.

Table 4.

Mechanical mode	Display
EJECT	00 00
I.A (Mode is changing.)	00 01
UNLOAD	00 02
I.B (Mode is changing.)	00 03
STOP (Threading is completed.)	00 04
I.C (Mode is changing.)	00 05
RP (REC, PB, FF, REW, REVIEW, PAUSE)	00 06
Trouble of mode switch	00 AA

<TEST MODE>

. There are three test modes. When following adjustment are performed, it is displayed that the unit is put into the TEST MODE. When the trouble happens during adjustment of TEST MODE 1 to 3, check the address [0b]. Refer to alignments about detail.

Table 5.

Contents		Display
NO TEST	: nomal mode	00
TEST MODE1	: Section 8-3. Switching Position Adjustment	01
TEST MODE2	: Section 7-2-1. Battery End Adjustment	10
TEST MODE3	: Section 6. Tape Path Adjustment	11

SECTION 3
PERIODIC CHECK AND MAINTENANCE

The following periodic check and maintenance shedule are recommended to be performed in order to obtain maintain performance and longer life of the unit. The period of the check and maintenance refers to Hours Meter inside of Side Panel (R) Cover.

3-1. MAINTENANCE AFTER REPAIRS

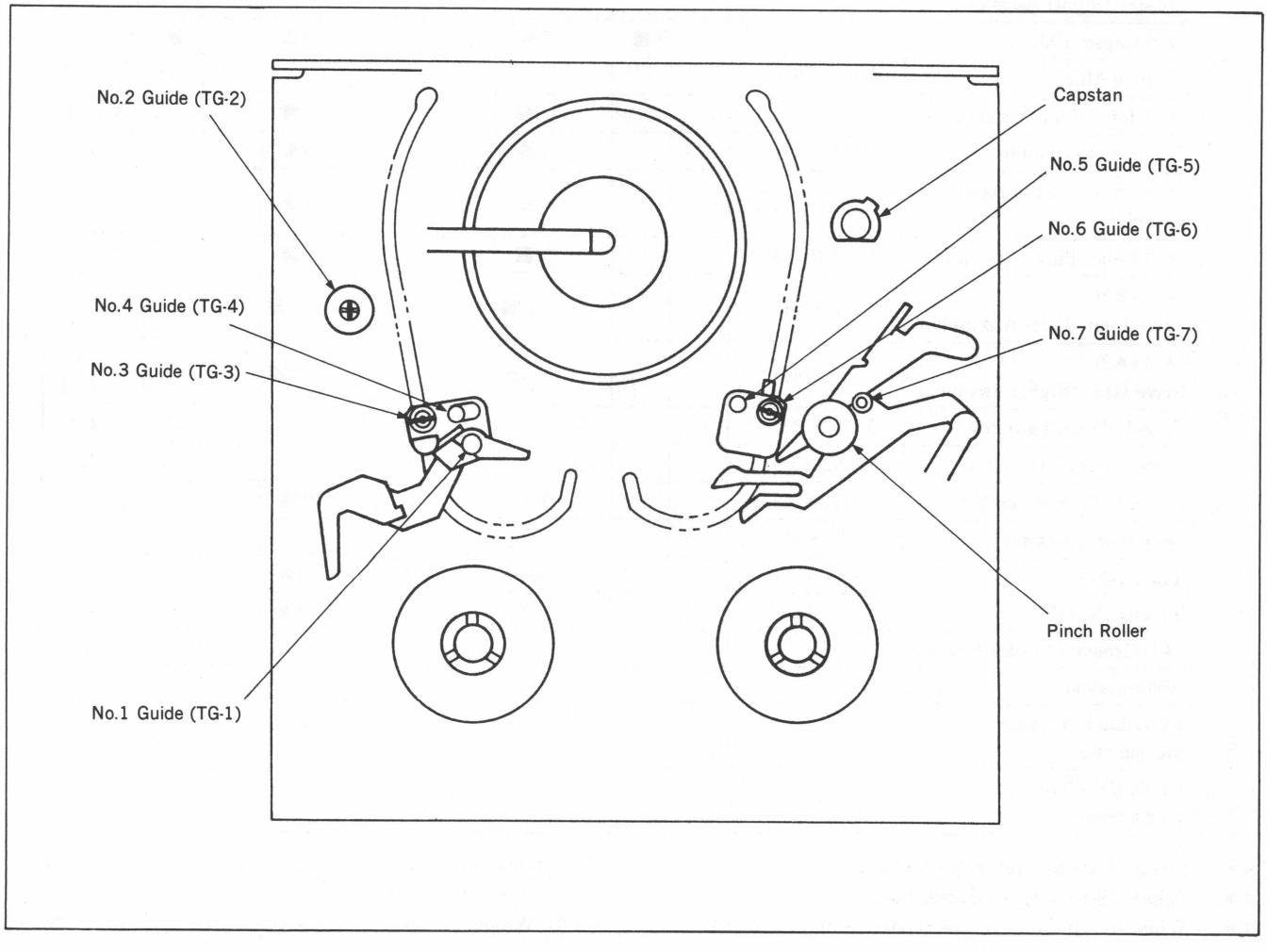
Perform the following maintenance after repairs without regarding operational hours of the unit.

(1) Cleaning of Rotary Upper Drum
Press cleaning piece moistend with cleaning fluid lightly against Rotary Upper Drum and turn slowly Rotary Upper Drum counterclockwise by a hand.

Note: Never turn it with electric power. Never turn it clockwise by a hand. When cleaning head chip, never move the cleaning piece in vertical direction. It is possible to damage the head chip.

(2) Cleaning of Tape Path System
Put Cassette-up Compartment Assembly into the EJECT mode. Clean tape path system as No. 1 thru. No. 11 Guides, Drum, Capstan Shaft, and Pinch Roller with the cleaning piece moistend with cleaning fluid.

(3) Cleaning of Drive System
Clean drive system as Reel Table surface and belt with the cleaning piece moistend with cleaning fluid.



3-2. PERIODIC CHECK

Perform periodic check and maintenance according to operational hours of the unit.

3-3. HOURS METER

Hours Meter can be displayed the total rotation time of the Upper Drum Assembly. When the Hours Meter reaches 1,000 hours, it is recommended to replace the Upper Drum Assembly with a new one.

○ : Cleaning ◆ : Replacement ◇ : Check ■ : Apply oil □ : Smear grease

Location			Hours of Use (H) : Hour of Drum Rotation										Reference Section
	Part Name	Part No.	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	
Tape Path	Tape Path surface	—	○	○	○	○	○	○	○	○	○	○	3-1.
	Upper Drum Assembly (DGR-36-R)	A-7049-191-A	○	◆	○	◆	○		○	◆	○	◆	4-22.
	Drum Assembly (DGU-36D-R)	A-7048-271-A	○	○	○	○	○	◆	○	○	○	○	4-22.
	Pinch Roller Assembly	A-7040-219-A	○	○	○	○	○	◆	○	○	○	○	4-8.
	(*1) Coaster (Left) Assembly	A-7040-204-A				□				□			3-4. 4-20.
	(*1) Coaster (Right) Assembly	A-7040-220-A				□				□			3-4. 4-19.
	(*2) Capstan Motor	8-835-331-01		■		■		◆		■		■	3-5. 4-3.
Drive System	Loading Motor	A-7040-160-A						◆					4-21.
	(*2) Joint Gear Assembly	X-3726-805-1				■				■			3-5. 4-16.
	TS Brake Assembly	X-3726-808-2				◆				◆			4-17.
	Tension Regulator Band Assembly	X-3726-809-2				◆				◆			4-12.
	(*2) Relay Pulley Assembly	X-3726-838-1				■				■			3-5. 4-17.
	(*1) (*2) Drive Gear (Left) Assembly	X-3728-842-1				□/■				□/■			3-4. 3-5. 4-20.
	(*1) (*2) Drive Gear (Right) Assembly	X-3728-843-1				□/■				□/■			3-4. 3-5. 4-19.
	S Reel Table Assembly	X-3728-851-1	○	○	○	○	○	◆	○	○	○	○	4-10.
	T Reel Table Assembly	X-3728-855-1	○	○	○	○	○	◆	○	○	○	○	4-11.
	(*2) RC Gear Assembly	X-3728-858-1				■				■			3-5. 4-16.
	(*1) Worm Assembly	X-3728-868-1				□				□			3-4. 4-21.
	Timing Belt (S)	3-728-866-11				◆				◆			4-16.
	Timing Belt (L)	3-741-197-01				◆				◆			4-16.
	(*1) Groove of Coaster Guide	—				□				□			3-5.
Performance Check	Abnormal-noise	—	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
	FWD Back Tension Measurement	—		◇		◇		◇		◇		◇	5-1.
	FWD, RVS Torque Measurement	—		◇		◇		◇		◇		◇	5-2.

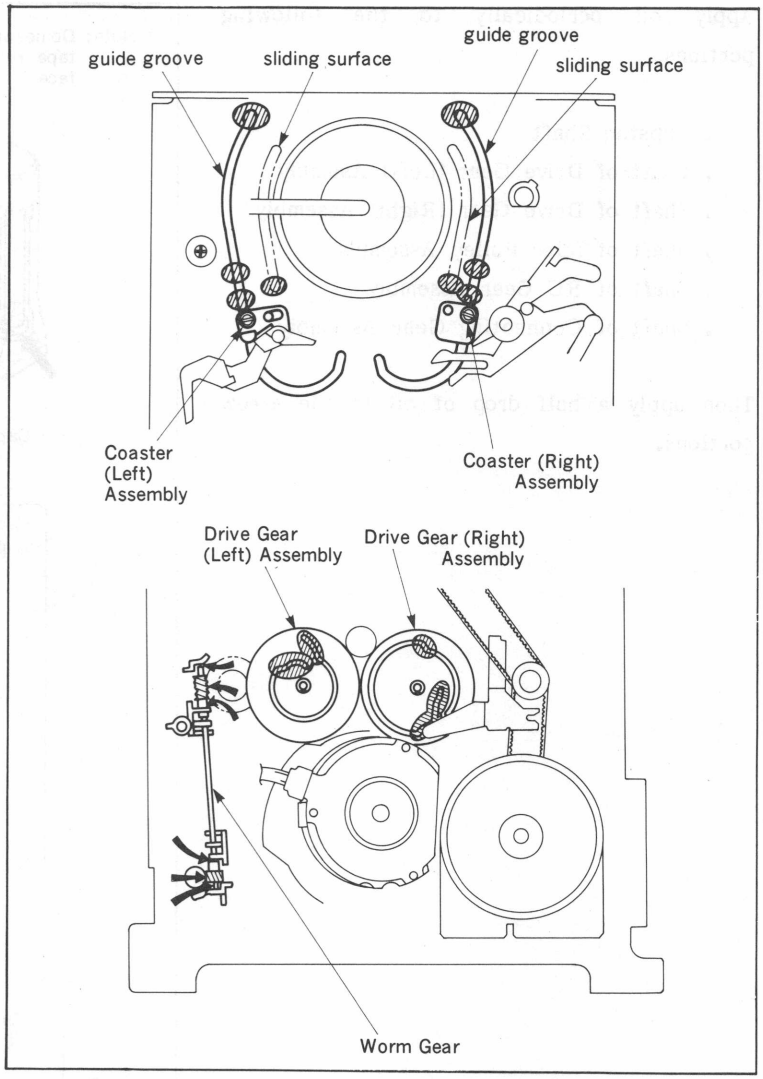
(*1) Smear a grease referring to Section 3-4.
(*2) Apply oil referring to Section 3-5.
(*3) When overhauling, replace part referring to the list.
(*4) Replacement of part will be influenced by operating surrowndings.
(*5) When repairing, be sure to clean Tape Path surface.

3-4. SMEAR GREASE

Smear a grease periodically to the following portions.

- Top projection of Coaster (Left) Assembly
- Top projection of Coaster (Right) Assembly
- Coaster Guide's groove of mechanical chassis
- Sliding surface of the Coaster Guide on the mechanical chassis
- Lever Drive's groove of Drive Gear (Left) Assembly
- Lever Drive's groove of Drive Gear (Right) Assembly
- Worm Gear of Worm Assembly

Then smear a grease to the shaded portions and arrow portions.

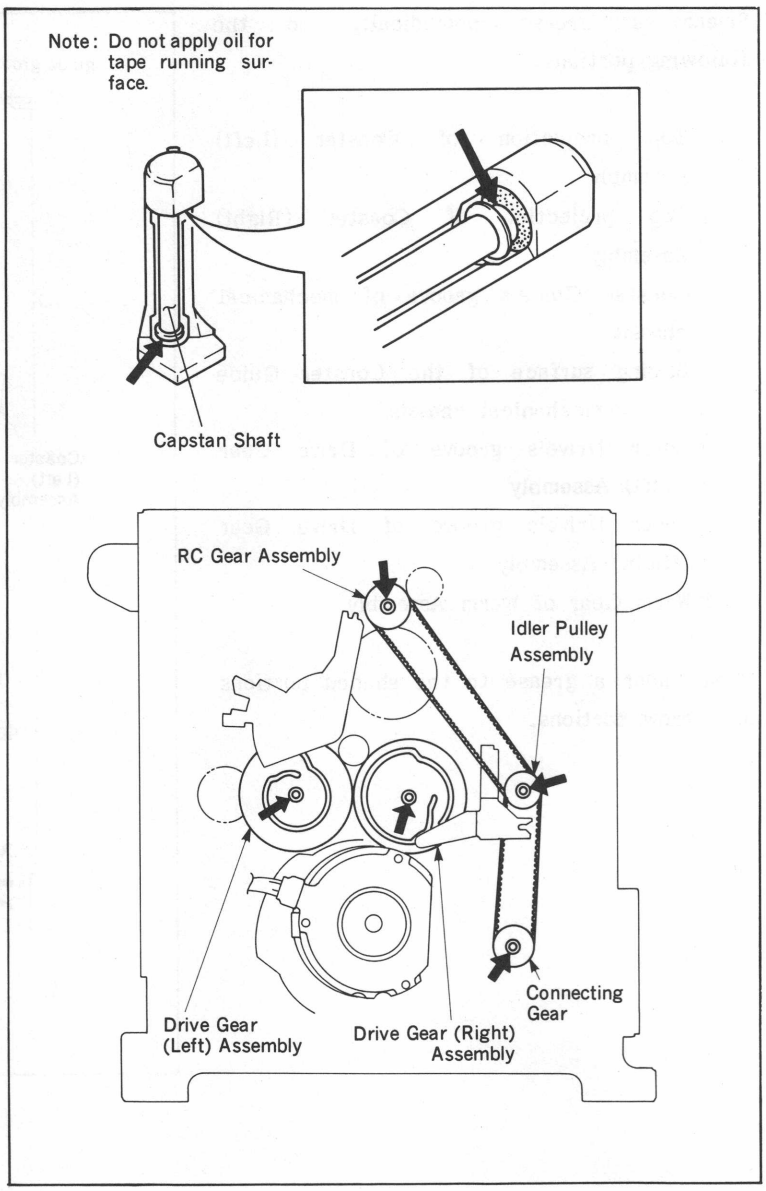


3-5. APPLY OIL

Apply oil periodically to the following portions.

- . Capstan Shaft
- . Shaft of Drive Gear (Left) Asembly
- . Shaft of Drive Gear (Right) Assembly
- . Shaft of Idler Pulley Assembly
- . Shaft of RC Gear Assembly
- . Shaft of Connecting Gear Assembly

Then apply a half drop of oil to the arrow portions.



3-6. HOW TO USE CLEANING TAPE

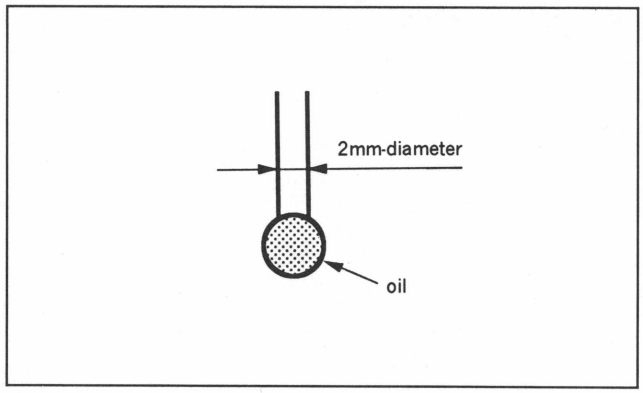
Cleaning tape: V8-6CLHSP
(supplied accessory)
V8-25CLH (option)

Note: Do not use cleaning tape, V8-25CLN.

(1) When Rotary Head clogs and the head clogging cannot remove with head cleaning, use the cleaning tape. If using in other conditions, it will be shorten the life of the head.
(2) Use within fifteen seconds for a cleaning and never rewind the cleaning tape for use. The cleaning tape can only once be used.

3-7. OTHERS

(1) Sony oil
. Be sure to use Sony oil. If other oil is used, it is possible to trouble because of different viscosity.
Sony oil: Part No. 7-661-018-18
. Use Sony oil in which dust and others are not mixed. If mixed, it is possible to seizure or wear of bearing.
. A drop of oil means the amount which sticks to a 2mm-diameter rod as shown in the figure.



(2) Sony grease
. Be sure to use Sony grease.
Sony grease: Part No. 7-662-010-08
(SGL-701)

SECTION 4
REPLACEMENT OF MAJOR PART

PREPARATION FOR REPLACEMENT OF PART

Replacement of some parts use a Mode Selector (Tool). ☐ marked modes in the replacement procedure are set by pressing button on the Mode Selector. Install a Mode Selector III Panel on the Mode Selector and then use it.

Mode Selector: J-6080-825-A
Mode Selector III Panel: J-6082-023-A

Operation of Mode Selector

1. Location of part and control (Fig. 1)
2. Connection (Fig. 2)

(1) Install the Mode Selector III Panel on the Mode Selector.

(2) Connect the Mode Selector III Conversion Connector to the 6P connector (white) of the Mode Selector M-switch.

(3) Remove the Mechanical Deck Block referring to Section 2-3.

(4) Disconnect the connector CN003 of Loading Motor from the SS-43 Board and CN001 (FP-89 Board) from the CC-44 Board.

(5) Install the FP-89 Board to the Mode Selector III Conversion Connector. Connect the 2P connector of Loading Motor (red CN003/SS-43) to the 2P connector (white).

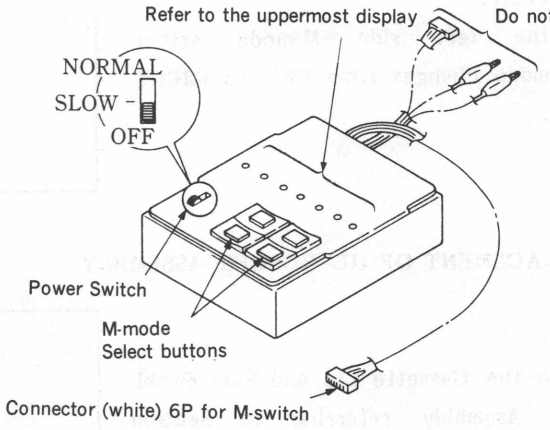


Fig. 1

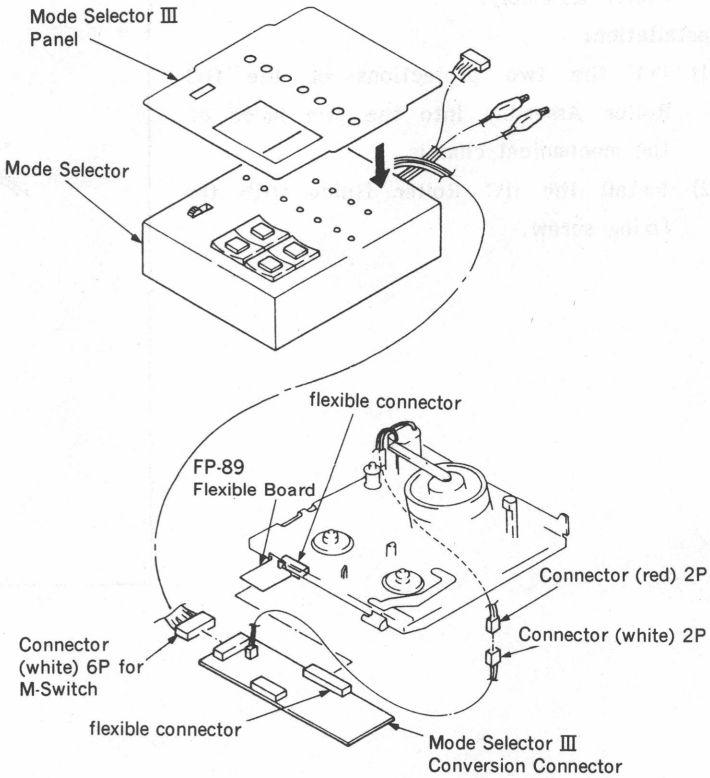


Fig. 2

3. Operation (Fig. 3)

. Use only M-mode select buttons.

. Refer to the uppermost display on the Mode Selector III Panel about display of the mode. The displays of IA, IB and IC light up during the mode changes.

. Press continuously the right side M-mode select button and the mode changes the EJECT, (IA), ULD, (IB), STOP, (IC) and FWD in order.

. Press the left side M-mode select button, mode changes from FWD to EJECT in order.

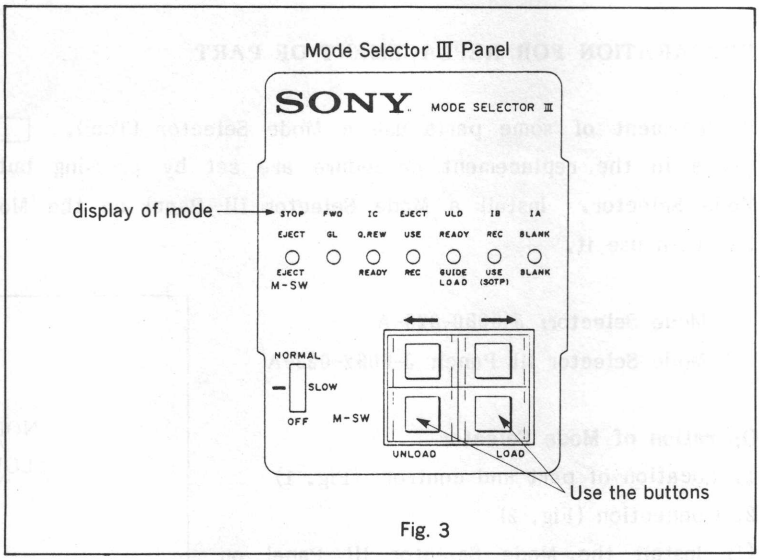


Fig. 3

4-1. REPLACEMENT OF HC ROLLER ASSEMBLY

Removal:

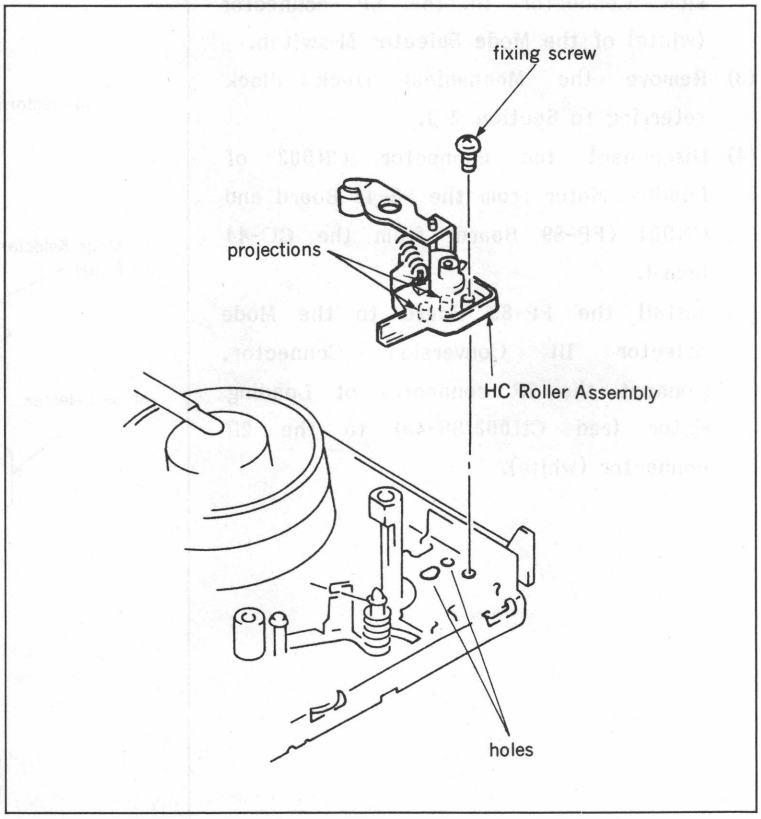
(1) Remove the Cassette Lid and Side Panel (Left) Assembly referring to Section 2-2.

(2) Remove a fixing screw and remove HC Roller Assembly.

Installation:

(1) Put the two projections of the HC Roller Assembly into the two holes of the mechanical chassis.

(2) Install the HC Roller Guide with the fixing screw.



4-2. REPLACEMENT OF GUIDE GUARD ASSEMBLY

Removal:

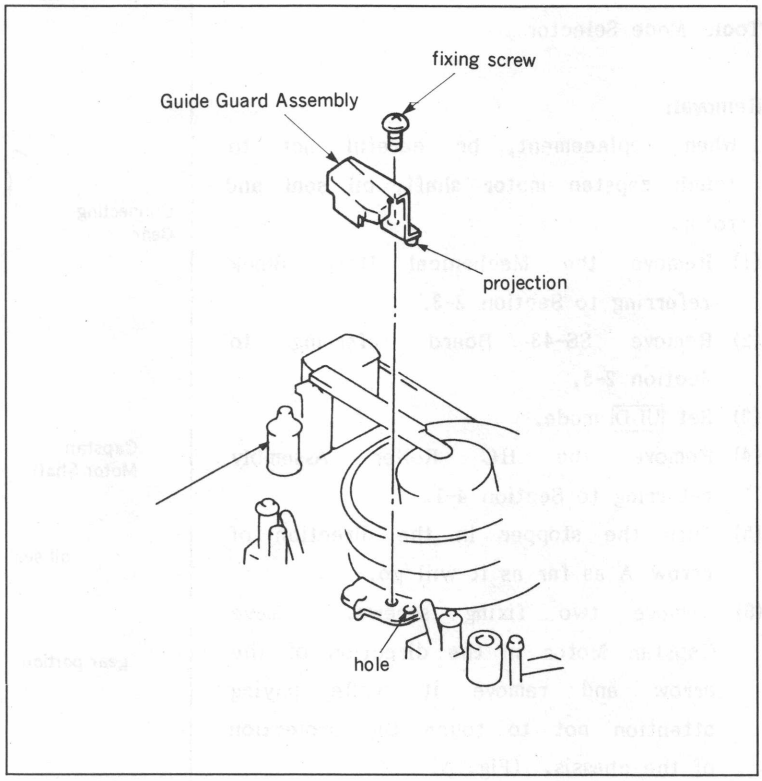
(1) Remove the Cassette Lid and Side Panel (Left) Assembly referring to Section 2-2.

(2) Remove a fixing screw and remove Guide Guard Assembly.

Installation:

(1) Put a projection of the Guide Guard Assembly into the hole.

(2) Install the Guide Guard Assembly with the fixing screw.



4-3. REPLACEMENT OF DC MOTOR (CAPSTAN MOTOR)

Tool: Mode Selector

Removal:

. When replacement, be careful not to touch capstan motor shaft, oil seal and rotor.

(1) Remove the Mechanical Deck Block referring to Section 2-3.

(2) Remove SS-43 Board referring to Section 2-5.

(3) Set ULD mode.

(4) Remove the HC Roller Assembly referring to Section 4-1.

(5) Turn the stopper in the direction of arrow A as far as it will go.

(6) Remove two fixing screws. Move Capstan Motor in the direction of the arrow and remove it while paying attention not to touch the projection of the chassis. (Fig. A)

Installation:

(1) Move the Capstan Motor in the opposite direction of the arrow and install it in the hole of the chassis. (Fig. A)

(2) Put the two projections of the Capstan Motor to the holes of the fixing screw. Engage the gear portion of the Capstan Motor to Connecting Gear. Be careful not to damage the gear.

(3) Install the Capstan Motor with two fixing screws. Check that there is no clearance between the Capstan Motor and chassis.

(4) Turn the stopper in the direction of arrow B as far as it will go.

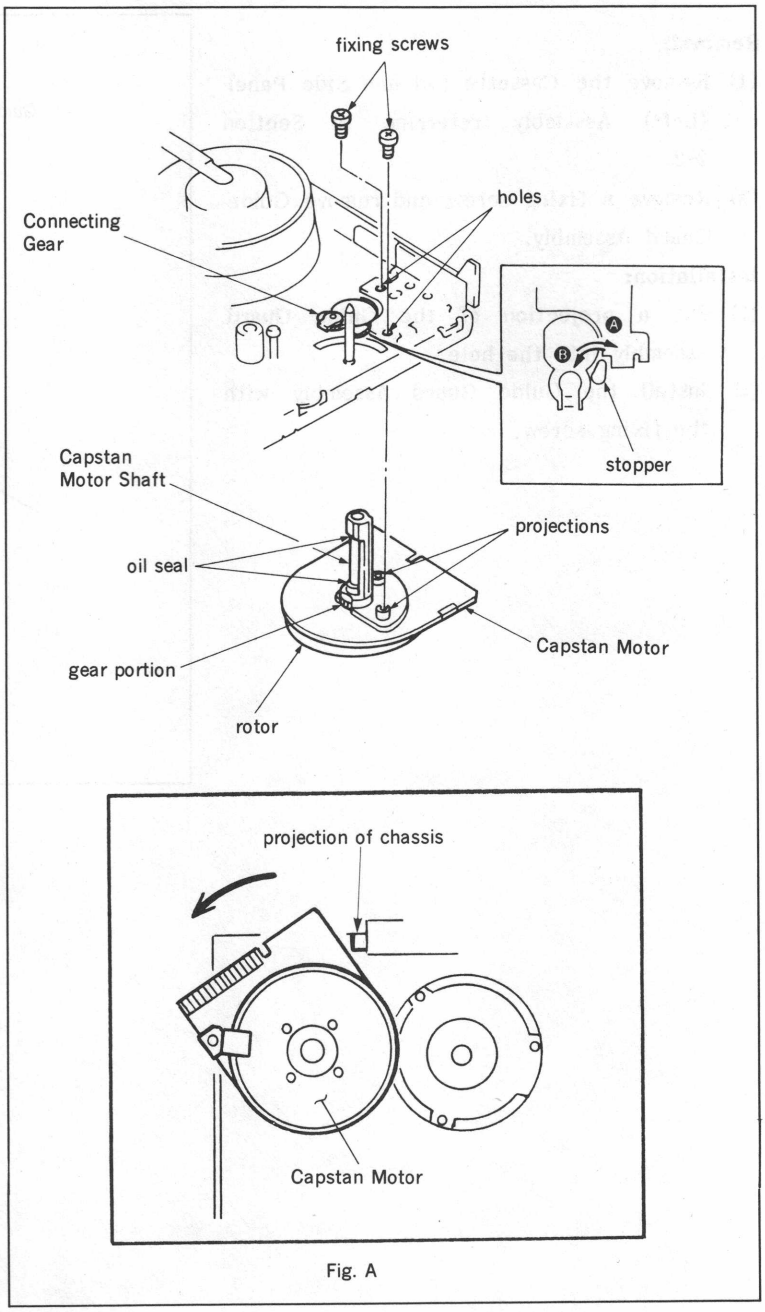


Fig. A

4-4. REPLACEMENT OF S AND T BRAKES

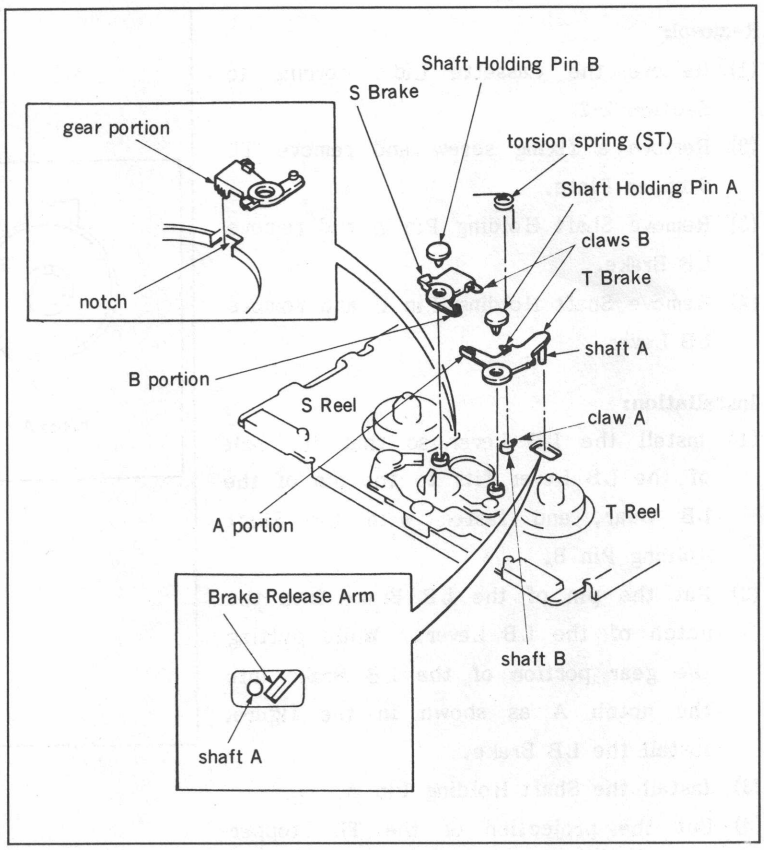
Removal:

(1) Remove the Cassette Lid referring to Section 2-2.
(2) Remove tortion spring (ST).
(3) Remove Shaft Holding Pin A and remove T Brake.
(4) Remove Shaft Holding Pin B and remove S Brake.

Installation:

(1) While putting the gear portion to the notch, install the S Brake.
(2) Install the Shaft Holding Pin B.
(3) Put the shaft A of the T Brake to the left side of the Brake Release Arm as shown in the figure and install the T Brake.
(4) Install the Shaft Holding Pin A.
(5) Put the torsion spring (ST) under the claw A of the shaft B and hook each ends of spring to the claws B.

Note: Before assemble the S and T Brakes, check that the claws of the Shaft Holding Pins A and B are not broken.



4-5. REPLACEMENT OF LB BRAKE AND SHAFT HOLDING PIN

Removal:

(1) Remove the Cassette Lid referring to Section 2-2.

(2) Remove a fixing screw and remove TL Stopper Plate.

(3) Remove Shaft Holding Pin A and remove LB Brake.

(4) Remove Shaft Holding Pin B and remove LB Lever.

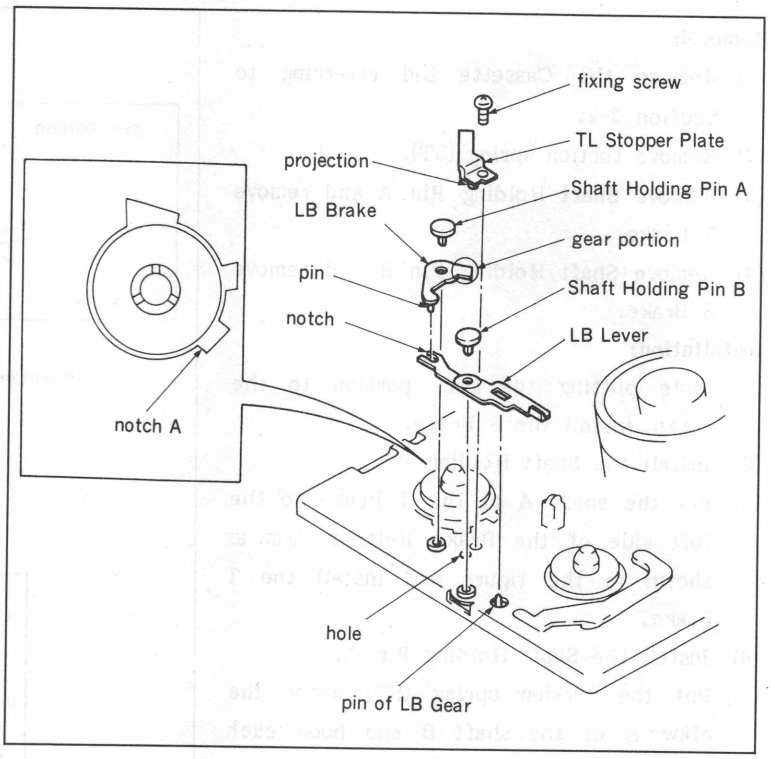
Installation:

(1) Install the LB Lever so that the hole of the LB Lever fits to the pin of the LB Gear, and fasten with the Shaft Holding Pin B.

(2) Put the pin of the LB Brake into the notch of the LB Lever. While putting the gear portion of the LB Brake into the notch A as shown in the figure, install the LB Brake.

(3) Install the Shaft Holding Pin A.

(4) Put the projection of the TL Stopper Plate to the hole, and install with the fixing screw.



Note: Before assemble the LB Brake and Shaft Holding Pins, check that the claws of the Shaft Holding Pins A and B are not broken.

4-6. REPLACEMENT OF LB RELEASE ARM

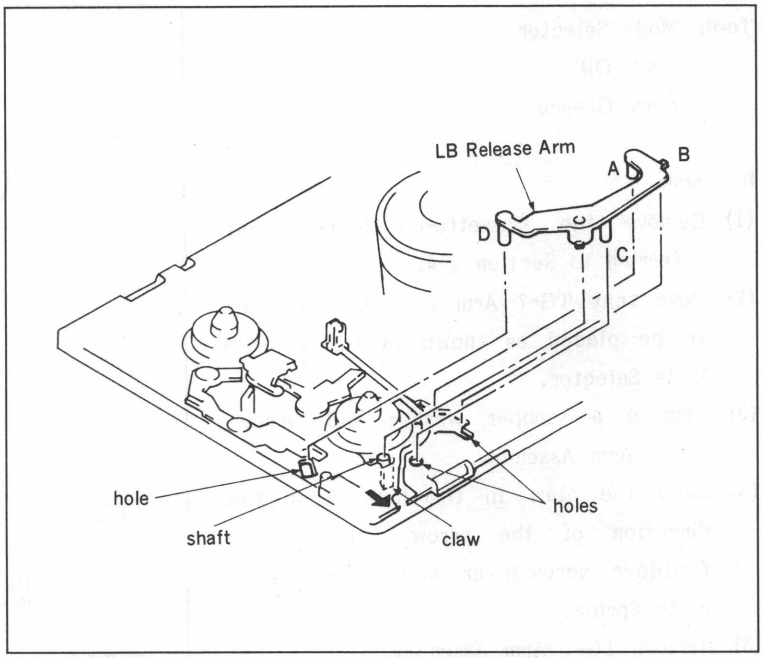
Removal:

(1) Remove the Cassette-up Compartment referring to Section 2-4.

(2) While pushing claw in the direction of the arrow from top of the unit with a thin flatblade screwdriver, remove LB Release Arm.

Installation:

(1) Put the LB Release Arm to the shaft. Put the A, B, C and D points into the three holes and lock the LB Release Arm with the claw.



4-7. REPLACEMENT OF RK STOPPER AND STOPPER ARM

Removal:

(1) Remove the Cassette Lid referring to Section 2-2.

(2) Remove the Guide Guard Assembly referring to Section 4-2.

(3) Remove torsion spring (RK).

(4) Release claw of the chassis in the direction of the arrow and remove RK Stopper Arm.

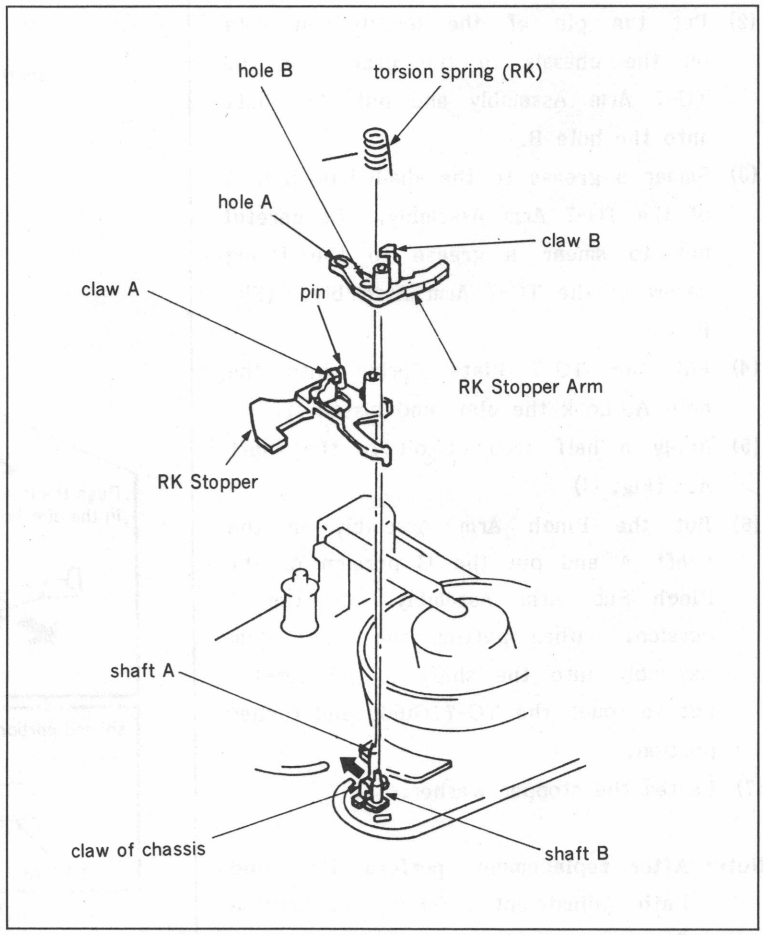
(5) Remove RK Stopper.

Installation:

(1) Install the RK Stopper to the shaft A.

(2) Install the RK Stopper Arm to the shaft B. Through the pin of the RK Stopper into the hole A of the RK Stopper Arm and lock the RK Stopper Arm with the claw of the chassis to the hole B.

(3) Put the torsion spring (RK) to the shaft of the RK Stopper and hook the ends of it to the claws A and B.



4-8. REPLACEMENT OF PINCH ARM ASSEMBLY AND TG-7 ARM ASSEMBLY

Tool: Mode Selector
Sony Oil
Sony Grease

Removal:

(1) Remove the Cassette-up Compartment referring to Section 2-4.

(2) Move that TG-7 Arm Assembly in order to be placed as shown in fig. A with Mode Selector.

(3) Remove a stopper washer and remove Pinch Arm Assembly.

(4) Bend the claw in the hole A in the direction of the arrow with a thin flatblade screwdriver and remove TG-7 Plate Spring.

(5) Remove TG-7 Arm Assembly.

Installation:

(1) Smear a grease to inside edge and bottom of the hole B.

(2) Put the pin of the longitudinal hole on the chassis to the groove of the TG-7 Arm Assembly and put the shaft into the hole B.

(3) Smear a grease to the shaded portion A of the TG-7 Arm Assembly. Be careful not to smear a grease to the fixing screw of the TG-7 Arm Assembly. (Fig. B)

(4) Put the TG-7 Plate Spring into the hole A. Lock the claw and install it.

(5) Apply a half drop of oil to the shaft A. (Fig. C)

(6) Put the Pinch Arm Assembly in the shaft A and put the C porsion of the Pinch Sub Arm Assembly into the B porsion. When putting the Pinch Arm Assembly into the shaft A, be careful not to touch the TG-7 Guide and rubber portion.

(7) Fasten the stopper washer.

Note: After replacement, perform the Tape Path Adjustment referring to Section 6.

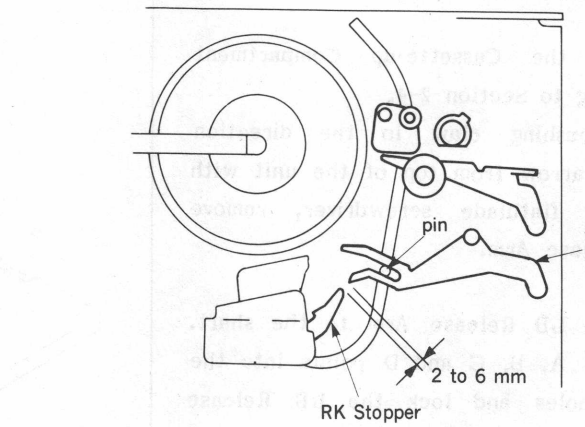
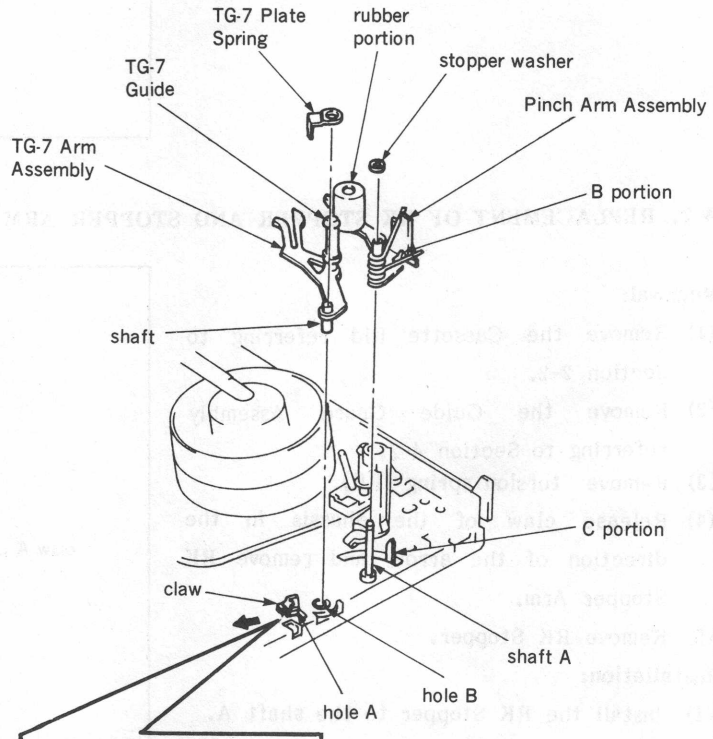
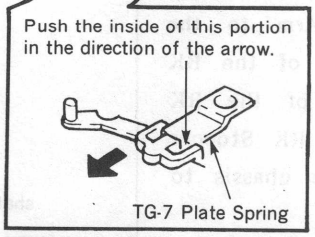


Fig. A





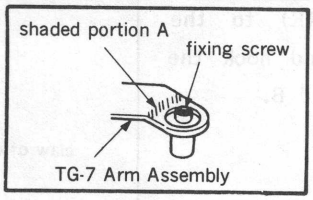


Fig. B

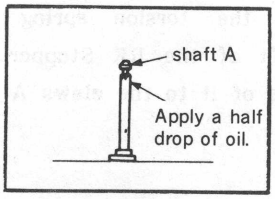


Fig. C

4-9. REPLACEMENT OF TG-2 ASSEMBLY

Removal:

(1) Remove the Cassette Lid and Side Panel (Left) Assembly referring to Section 2-2.

(2) Turn the arrow portion counterclockwise and remove TG-2 Upper Flange.

(3) Remove TG-2 Roller, TG-2 Sleeve and TG-2 Lower Flange and a compression spring.

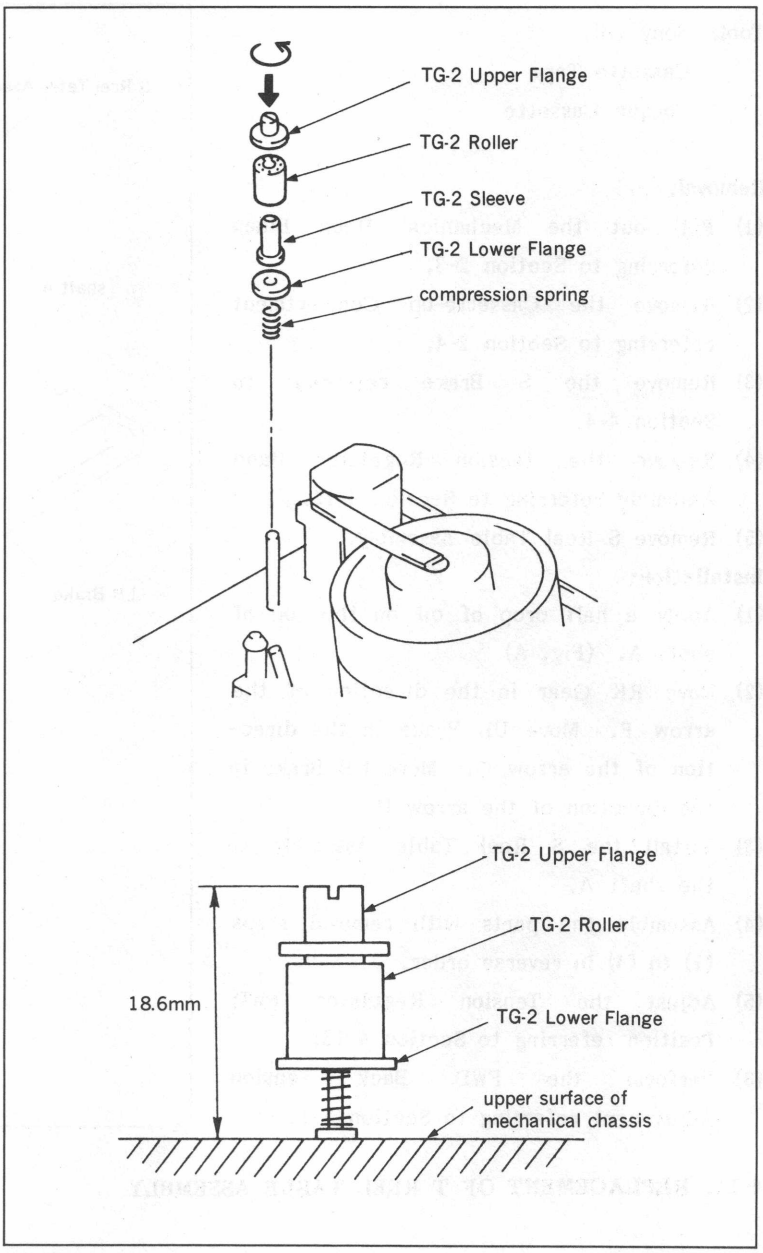
Installation:

(1) Install the compression spring, TG-2 Lower Flange, TG-2 Sleeve and TG-2 Roller to the shaft.

(2) Turn the TG-2 Upper Flange about 4 to 6 turns and install it to the shaft. After installation, perform the TG-2 Upper Flange Height Preset.

. Turn the TG-2 Upper Flange and adjust the height of TG-2 as shown in the figure.

Note: After replacement, perform the Tape Path Adjustment referring to Section 6.



4-10. REPLACEMENT OF S REEL TABLE ASSEMBLY

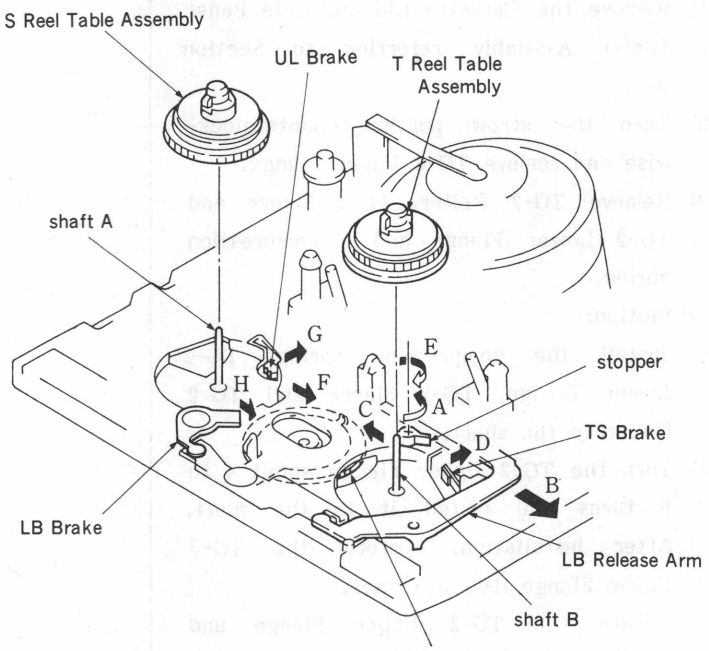
Tool: Sony Oil
Cassette Tape
Torque Cassette

Removal:

(1) Pull out the Mechanical Deck Block referring to Section 2-3.
(2) Remove the Cassette-up Compartment referring to Section 2-4.
(3) Remove the S Brake referring to Section 4-4.
(4) Remove the Tension Regulator Band Assembly referring to Section 4-12.
(5) Remove S Reel Table Assembly.

Installation:

(1) Apply a half drop of oil on the top of shaft A. (Fig. A)
(2) Move RK Gear in the direction of the arrow F. Move UL Brake in the direction of the arrow G. Move LB Brake in the direction of the arrow H.
(3) Install the S Reel Table Assembly to the shaft A.
(4) Assemble the parts with removal steps (1) to (4) in reverse order.
(5) Adjust the Tension Regulator FWD Position referring to Section 4-13.
(6) Perform the FWD Back Tension Adjustment referring to Section 5-1.



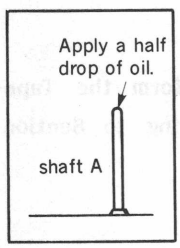


Fig. A

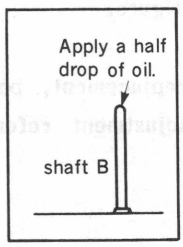


Fig. B

4-11. REPLACEMENT OF T REEL TABLE ASSEMBLY

Tool: Sony Oil

Removal:

(1) Pull out the Mechanical Deck Block referring to Section 2-3.
(2) Remove the Cassette-up Compartment referring to Section 2-4.
(3) Remove the T Brake referring to Section 4-4.
(4) Turn stopper about 90 degrees in the direction of the arrow A.
(5) Move LB Release Arm in the direction of the arrow B and remove T Reel Table Assembly.

Installation:

(1) Apply a half drop of oil on the top of shaft B. (Fig. B)
(2) Move RK Gear in the direction of the arrow C. Move TS Brake in the direction of the arrow D.
(3) Move LB Release Arm in the direction of the arrow B and install the T Reel Table Assembly to the shaft B.
(4) Turn the stopper in the direction of the arrow E as far as it will go.
(5) Assemble the parts with removal steps (1) to (3) in reverse order.

4-12. REPLACEMENT OF TENSION REGULATOR BAND ASSEMBLY AND TENSION REGULATOR ARM ASSEMBLY

Tool: Sony Oil
Cassette Tape
Torque Cassette

Removal:

(1) Pull out the Mechanical Deck Block referring to Section 2-3.
(2) Remove the Cassette-up Compartment referring to Section 2-4.
(3) Open the VO-29 and V0-28 Boards referring to Section 2-5.
(4) Remove the SS-43 Board referring to Section 2-5.
(5) Remove the TL Holder Plate referring to Section 4-5.
(6) Remove a fixing screw.
(7) Remove Tension Regulator Band Assembly from the shaft of Tension Regulator Arm Assembly with a thin flatblade screwdriver. Be careful not to damage the Tension Regulator Band and touch the felt portion of it.
(8) Remove a tension spring.
(9) Remove stopper washer from the back of mechanical chassis. Remove Tension Regulator Arm Assembly.
(10) Release claw and remove Adjust Arm.

Installation:

(1) Engage the Adjust Arm so that the claw can be locked as shown in figure A.
(2) Apply a half drop of oil to the fixing hole of the Tension Regulator Arm Assembly.
(3) Install Tension Regulator Arm Assembly so that the A portion is positioned in the side of arrow A from Switch Lever Assembly. (Fig.B)

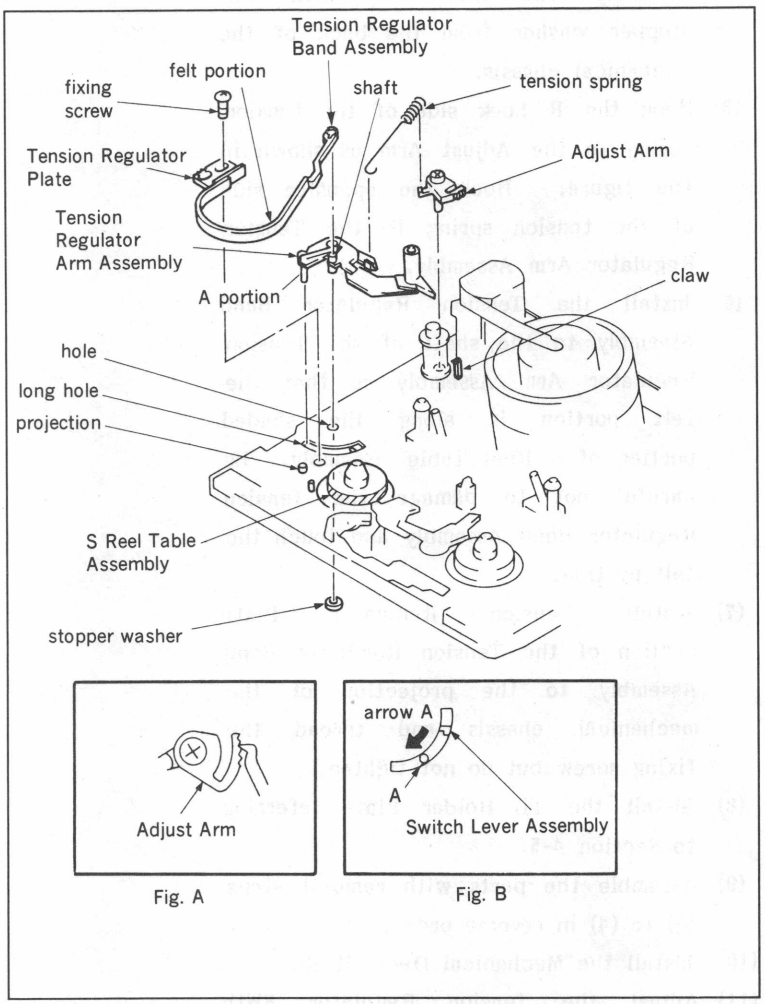


Fig. A Fig. B

(4) Hold the Tension Regulator Arm Assembly and install it with the stopper washer from the back of the mechanical chassis.

(5) Hook the R hook side of the tension spring to the Adjust Arm as shown in the figure. Hook the opposite side of the tension spring to the Tension Regulator Arm Assembly.

(6) Install the Tension Regulator Band Assembly to the shaft of the Tension Regulator Arm Assembly so that the felt portion is along the shaded portion of S Reel Table Assembly. Be careful not to damage the Tension Regulator Band Assembly and touch the felt portion.

(7) Install Tension Regulator Plate portion of the Tension Regulator Band Assembly to the projection of the mechanical chassis and thread the fixing screw but do not tighten.

(8) Install the TL Holder Plate referring to Section 4-5.

(9) Assemble the parts with removal steps (2) to (4) in reverse order.

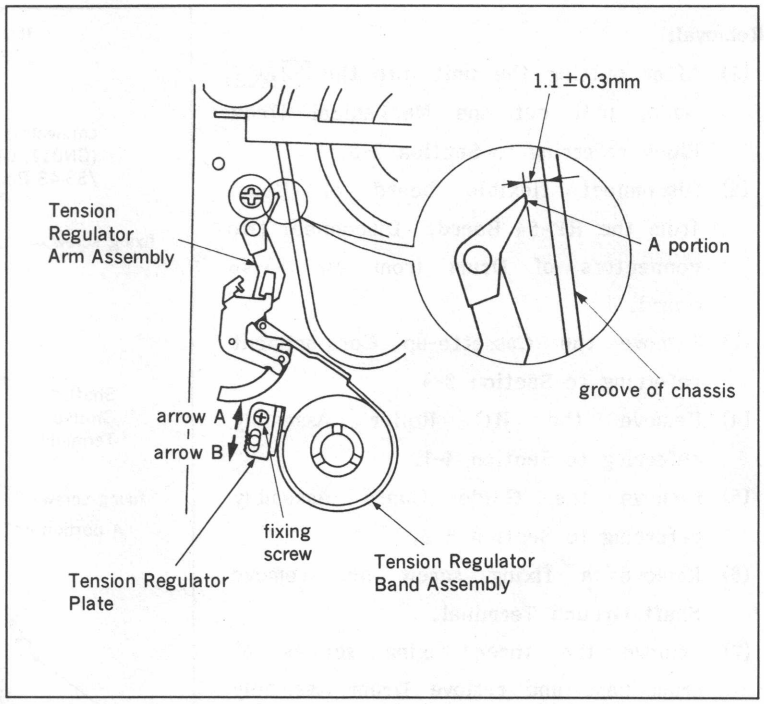
(10) Install the Mechanical Deck Block.

(11) Adjust the Tension Regulator FWD Position referring to Section 4-13.

(12) Perform the FWD Back Tension Adjustment referring to Section 5-1.

4-13. TENSION REGULATOR FWD POSITION PRESET

Tool: Cassette Tape



Removal:

(1) Remove the Cassette Lid and Side Panel (Left) Assembly referring to Section 2-2.

(2) Insert a cassette tape and put the unit into the PLAY mode.

(3) Check that the clearance between A portion of the Tension Regulator Arm Assembly and groove of the chassis is 1.1 ± 0.3 mm. When it is out of the specification, eject the cassette tape and perform the following adjustments.

(4) Loosen the fixing screw of the Tension Regulator Band Assembly.

(5) If the clearance more than the specification, move the Tension Regulator Plate in the direction of the arrow A and tighten the fixing screw. If the space is less than the specification, move the Tension Regulator Plate in the direction of the arrow B and tighten the fixing screw.

(6) Perform steps (2) and (3) again and check that the clearance meets the required specification.

Note: Use a cassette tape which has been advanced half way through minutes.

4-14. REPLACEMENT OF DRUM ASSEMBLY AND CONDENSATION SENSOR

Removal:

(1) After putting the unit into the EJECT mode, pull out the Mechanical Deck Block referring to Section 2-3.

(2) Disconnect flexible board of Drum from the RP-54 Board. Disconnect two connectors of Drum from the SS-43 Board.

(3) Remove the Cassette-up Compartment referring to Section 2-4.

(4) Remove the HC Roller Assembly referring to Section 4-1.

(5) Remove the Guide Guard Assembly referring to Section 4-2.

(6) Remove a fixing screw and remove Shaft Ground Terminal.

(7) Remove the three fixing screws of drum base and remove Drum Assembly with the drum base from the mechanical chassis. Be careful not to cut the flexible board or harness.

(8) Remove three fixing screws and remove Drum Assembly from the drum base.

(9) Disconnect connector of Condensation Sensor from the SS-43 Board.

(10) Remove a fixing screw and remove the Condensation Sensor.

Note: Be careful not to touch the head chip.

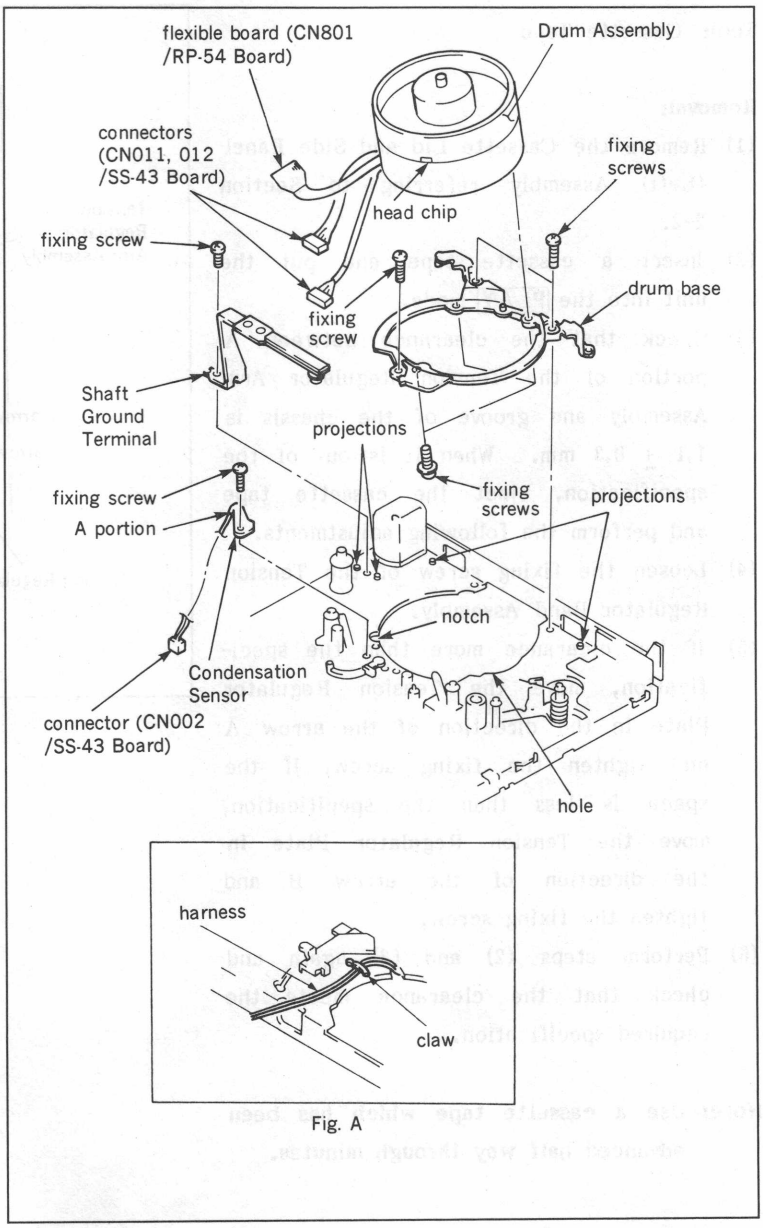


Fig. A

Installation:

(1) Put the A portion of the Condensation Senser into the notch of the mechanical chassis and tighten the fixing screw.

(2) Connect the connector of the Condensation Senser to the connector CN002 on the SS-43 Board.

(3) Pinch the harness of the Condensation Senser to the Plate SS Assembly's claw of the back of mechanical chassis. (Fig. A)

(4) Put the Drum Assembly to the two projections of the drum base and tighten three fixing screws.

(5) Through the connectors and flexible board into the hole of the mechanical chassis. Put the drum base to the two projections of the mechanical chassis and tighten the three fixing screws.

(6) Put the Shaft Ground Terminal to the two projections of the mechanical chassis and tighten the fixing screw.

(7) Install the parts with removal steps (3) to (5) in reverse order.

(8) Connect the 4P connector (black) to CN011 on the SS-43 Board. Connect the 4P connector (red) to CN012 on the SS-43 Board. Connect the flexible board to CN801 on the RP-54 Board.

Note: Be careful not to cut the flexible board or harness. Be careful not to touch the head chip.

Note: After replacement, perform the Tape Path Adjustment referring to Section 6.

4-15. REPLACEMENT OF EJECT LEVER, SWITCH LEVER ASSEMBLY AND PINCH SUB ARM ASSEMBLY

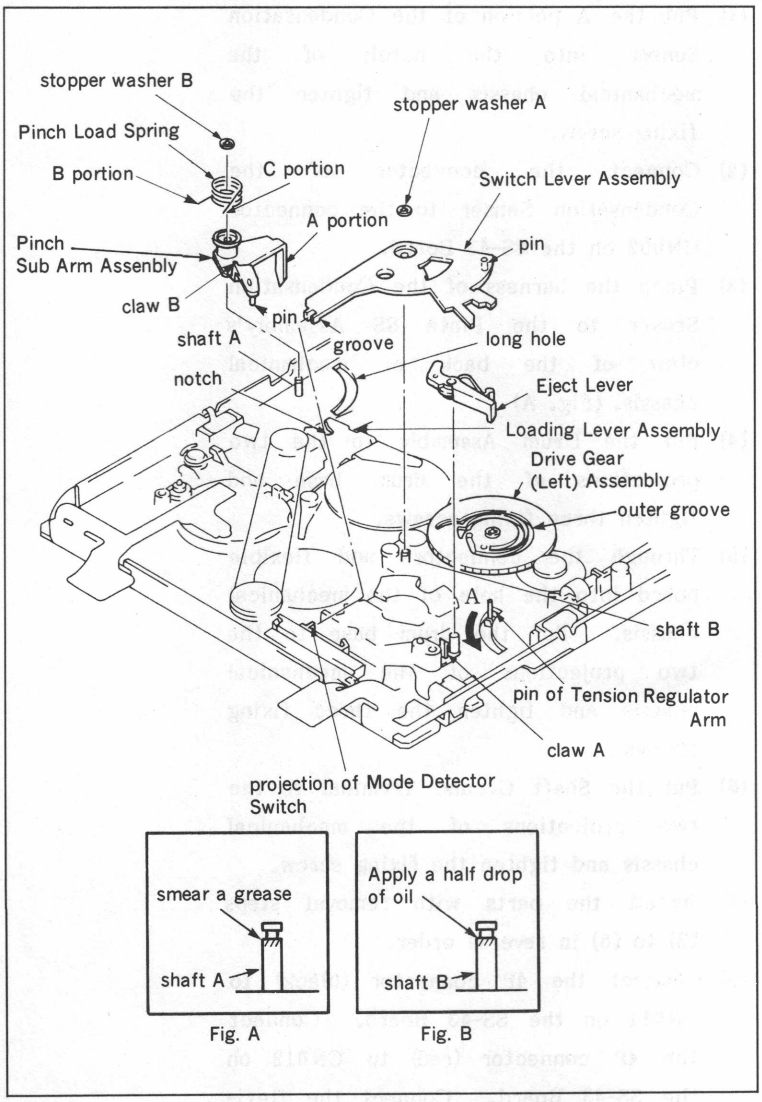
Tool: Mode Selector
Sony Grease
Sony Oil

Removal:

(1) Remove the Capstan Motor referring to Section 4-3.
(2) Put the unit into the STOP mode.
(3) Release claw A and remove Eject Lever.
(4) Remove stopper washer A and remove Switch Lever Assembly.
(5) Remove Pinch Load Spring.
(6) Remove stopper washer B and remove Pinch Sub Arm Assembly.

Installation:

(1) Smear a grease to shaft A. (Fig. A)
(2) While putting the A portion of the Pinch Sub Arm Assembly into the longitudinal hole, put the pin into the notch of the Loading Lever Assembly.
(3) Fasten stopper washer B.
(4) Hook the B portion of the Pinch Load Spring between claw B and chassis. Hook the C portion of the Pinch Load Spring to the claw B, and install it.
(5) Apply a half drop of oil to shaft B. (Fig. B)
(6) Put the groove of the Switch Lever Assembly to the projection of the Mode Detector Switch and assemble the Switch Lever Assembly to shaft B. Put the pin of the Switch Lever Assembly into the outer groove of Drive Gear (left) Assembly. If the Tension Regulator Arm Assembly is installed, move the pin of the Tension Regulator Arm Assembly in the direction of the arrow A.
(7) Fasten the stopper washer A.
(8) Install the Eject Lever and lock claw A.
(9) After putting the unit into the ULD mode, install the Capstan Motor referring to Section 4-3.



4-16. REPLACEMENT OF TIMING BELT (L), RC GEAR ASSEMBLY, LOADING LEVER ASSEMBLY, TIMING BELT (S) AND CONNECTING GEAR ASSEMBLY

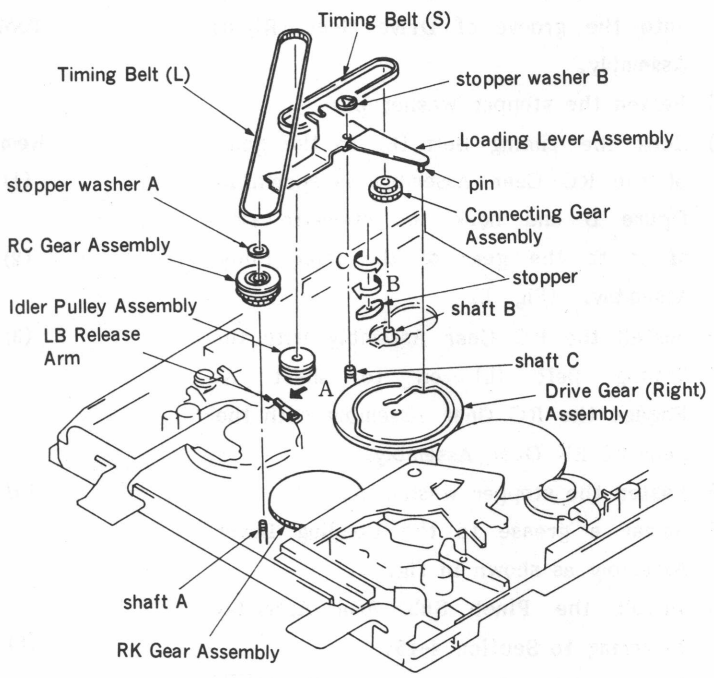
Tool: Mode Selector
Sony Oil
Sony Grease

Removal:

(1) Remove the Capstan Motor referring to Section 4-3.
(2) Remove the Pinch Sub Arm Assembly referring to Section 4-15.
(3) Put the unit into the STOP mode.
(4) Remove stopper washer A. Remove RC Gear Assembly together with Timing Belt (L) from shaft A.
(5) Remove the Timing Belt (L) from Idler Pulley Assembly.
(6) Remove stopper washer B. While pushing LB Release Arm in the direction of arrow A, remove Loading Lever Assembly.
(7) Turn the stopper about 90 degrees in the direction of the arrow B.
(8) Remove Connecting Gear Assembly together with Timing Belt (S) from shaft B. Be careful not to touch the flange portion. (Fig. D)
(9) Remove the Timing Belt (S) from the Idler Pulley Assembly.

Installation:

(1) Apply a half drop of oil to shaft B. (Fig. F)
(2) Hook the Timing Belt (S) to the Connecting Gear Assembly and hook the opposite side of it to the gear of the Idler Pulley Assembly. (Fig. E)
(3) Install the Connecting Gear Assembly to shaft B with the Timing Belt (S) hooked on.
(4) Turn the stopper in the direction of arrow C as far as it will go.
(5) Apply a half drop of oil on shaft C. (Fig. A)



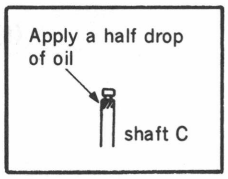


Fig. A

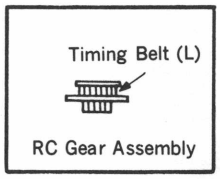


Fig. B

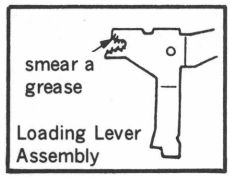


Fig. C

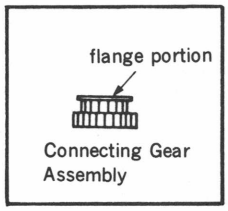


Fig. D

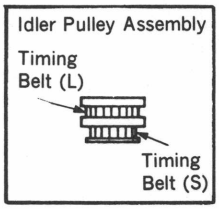


Fig. E

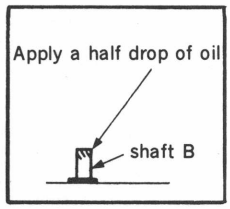


Fig. F

(6) Move the LB Release Arm in the direction of arrow A and put the Loading Lever Assembly to shaft C. Put the pin of the Loading Lever Assembly into the groove of Drive Gear (Right) Assembly.

(7) Fasten the stopper washer B.

(8) Hook the Timing Belt (L) to the gear of the RC Gear Assembly as shown in figure B and hook the opposite side of it to the gear of the Idler Pully Assembly. (Fig. E)

(9) Install the RC Gear Assembly with the Timing Belt (L) on to shaft A. Engage the RC Gear Assembly with the gear of RK Gear Assembly.

(10) Fasten the stopper washer A.

(11) Smear a grease to the Loading Lever Assembly as shown in fig. C.

(12) Install the Pinch Sub Arm Assembly referring to Section 4-15.

(13) After putting the unit into the [ULD] mode, install the Capstan Motor referring to Section 4-3.

4-17. REPLACEMENT OF IDLER PULLEY, TS BRAKE ASSEMBLY, LB GEAR ASSEMBLY AND RK GEAR ASSEMBLY

Tool: Mode Selector
Sony Oil

Removal:

(1) Remove the Capstan Motor referring to Section 4-3.

(2) Remove the Switch Lever Assembly referring to Section 4-15.

(3) Remove the Timing Belt (L), RC Gear Assembly, Loading Lever Assembly, Timing Belt (S) and Connecting Gear Assembly referring to Section 4-16.

(4) Remove stopper washer A and remove Idler Pulley. Be careful not to touch the flange portion of the Idler Pulley. (Fig. C)

(5) Release the claw and remove TS Brake Assembly.

(6) Remove torsion spring (LB).

(7) Remove stopper washer B and remove LB Gear Assembly.

(8) Remove RK Gear Assembly.

Installation:

(1) Apply a half drop of oil to shaft A. (Fig. A)

(2) Install the RK Gear Assembly horizontally to the shaft A.

(3) Apply a half drop of oil to shaft B. (Fig. B)

(4) Install the LB Gear Assembly to shaft B with stopper washer B.

(5) Put torsion spring (LB) into shaft C. Hook it to the notch of the mechanical chassis and A portion of the LB Gear Assembly.

(6) Install the TS Brake Assembly and lock the claw.

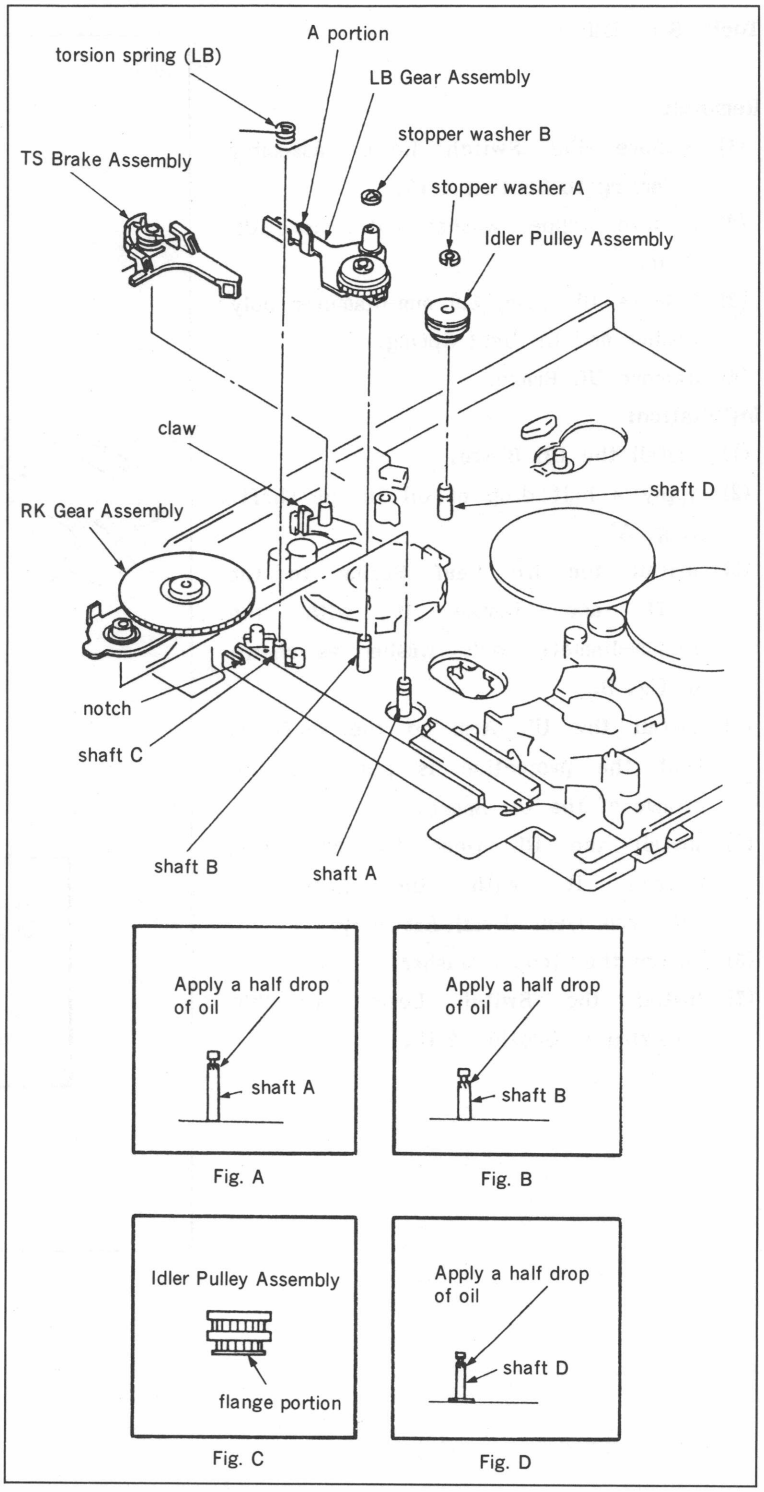
(7) Apply a half drop of oil to shaft D. (Fig. D)

(8) Install the Idler Pulley to shaft D. Fasten the stopper washer A.

(9) Install the Timing Belt (L), RC Gear Assembly, Loading Lever Assembly, Timing Belt (S) and Connecting Gear Assembly referring to Section 4-16.

(10) Install the Switch Lever Assembly referring to 4-15.

(11) After putting the unit into the ULD mode, install the Capstan Motor referring to Section 4-3.



4-18. REPLACEMENT OF UL GEAR, UL BRAKE, UL ARM AND LB LEAF SPRING

Tool: Sony Oil

Removal:

(1) Remove the Switch Lever Assembly referring to Section 4-15.

(2) Remove stopper washer and remove UL Gear.

(3) Remove UL Arm, 1.6 mm-diameter poly washer and LB Leaf Spring.

(4) Remove UL Brake.

Installation:

(1) Install the UL Brake.

(2) Apply a half drop of oil to the shaft. (Fig. A)

(3) Install the LB Leaf Spring to the shaft and fasten it with the 1.6mm-diameter poly washer as shown in fig. B.

(4) Install the UL Arm to the shaft so that the projection is put into the groove of the UL Brake.

(5) Install the UL Gear to the shaft. Engage it with the gear of the Drive Gear (Left) Assembly.

(6) Fasten the stopper washer.

(7) Install the Switch Lever Assembly referring to Section 4-15.

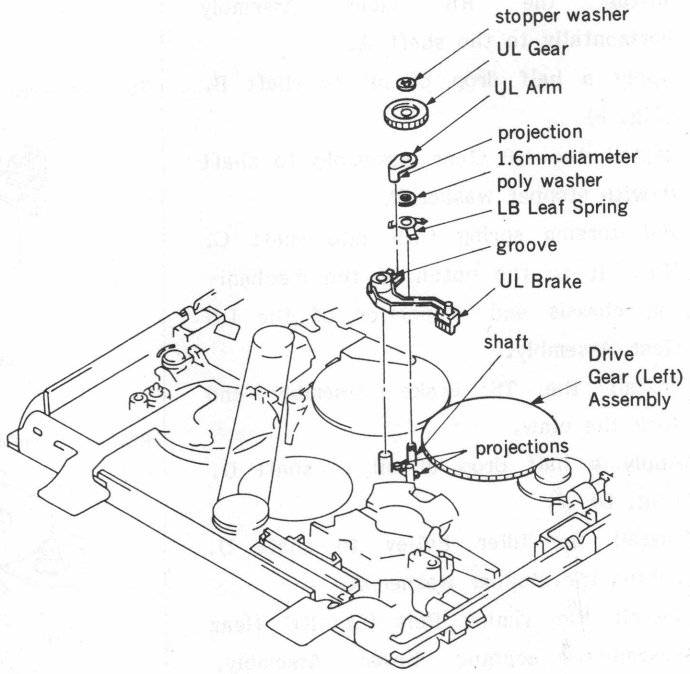


Fig. A

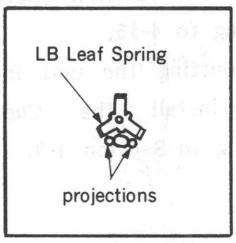


Fig. B

4-19. REPLACEMENT OF COASTER (RIGHT) ASSEMBLY AND DRIVE GEAR (RIGHT) ASSEMBLY

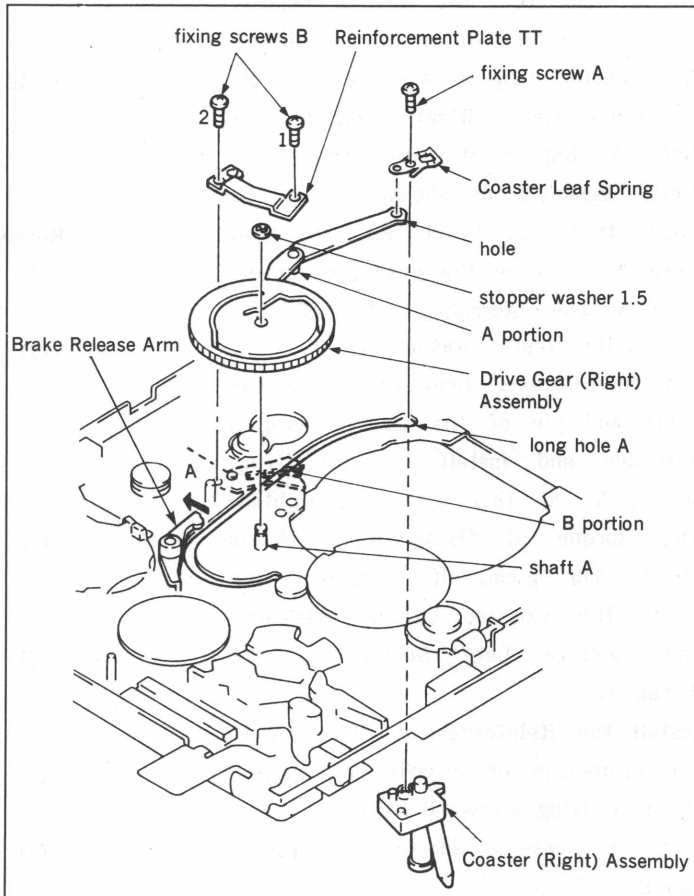
Tool: Mode Selector
Sony Oil
Sony Grease

Removal:

(1) Remove the Capstan Motor referring to Section 4-3.
(2) Remove the Drum Assembly referring to Section 4-14.
(3) Remove the Switch Lever Assembly referring to Section 4-15.
(4) Remove the Timing Belt (L), RC Gear Assembly and Loading Lever Assembly referring to Section 4-16.
(5) Remove fixing screw A. Remove the Coaster Leaf Spring and Coaster (Right) Assembly.
(6) Remove two fixing screws B and remove Reinforcement Plate TT.
(7) Remove the stopper washer 1.5 and remove the Drive Gear (Right) Assembly.

Installation:

(1) Smear a grease to the mechanical chassis as shown in fig. A.
(2) Apply a half drop of oil to shaft A. (Fig. F)
(3) Smear a grease to pin, shaft and projection of the Coaster (Right) Assembly. (Fig. D)
(4) Install the pin and shaft of the Coaster (Right) Assembly to the longitudinal hole A of the mechanical chassis.
(5) Move the Brake Release Arm in the direction of the arrow A.



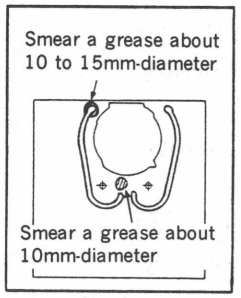


Fig. A

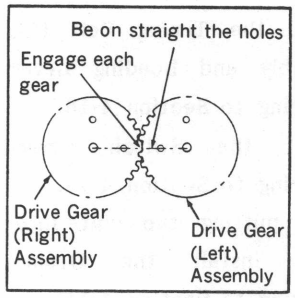


Fig. B

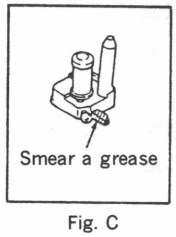


Fig. C

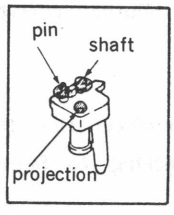


Fig. D

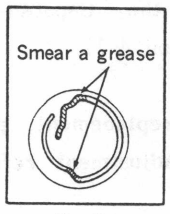


Fig. E

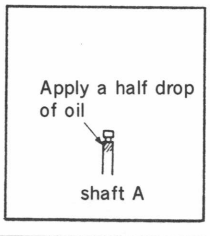


Fig. F

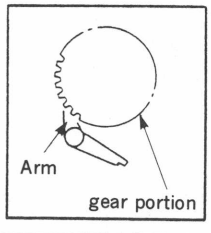


Fig. G

(6) Put the A portion of the Drive Gear (Right) Assembly into the B portion and put the hole of it to the pin of the Coaster (Right) Assembly. Install the Drive Gear (Right) Assembly to shaft A. Engage it with Drive Gear (Left) Assembly as shown in fig. B. Check that the Brake Release Arm Assembly is under the gear portion of the Drive Gear Assembly. (Fig. G)

(7) Fasten the stopper washer 1.5.

(8) Put the Coaster Leaf Spring to the shaft and pin of the Coaster (Right) Assembly and install it with fixing screw A. At this time, the tightenning torque of fixing screw A is about 500 g.cm. If tightened too much, the Coaster (Right) Assembly and Coaster Leaf Spring will be damaged.

(9) Install the Reinforcement Plate TT to the projection of chassis and tighten the two fixing screws B in order.

(10) Smear a grease as shown in figures C and E.

(11) Install the Timing Belt (L), RC Gear Assembly and Loading Lever Assembly referring to Section 4-16.

(12) Install the Switch Lever Assembly referring to Section 4-15.

(13) After putting the unit into the [ULD] mode, install the Drum Assembly referring to Section 4-14.

(14) Install the Capstan Motor referring to Section 4-3.

Note: After replacement, perform the Tape Path Adjustment referring to Section 6.

4-20. REPLACEMENT OF COASTER (LEFT) ASSEMBLY AND DRIVE GEAR (LEFT) ASSEMBLY

Tool: Mode Selector
Sony Oil
Sony Grease

Removal:

(1) Remove the Capstan Motor referring to Section 4-3.

(2) Remove the Drum Assembly referring to Section 4-14.

(3) Remove the Switch Lever Assembly and Pinch Sub Arm Assembly referring to Section 4-15.

(4) Remove the Timing Belt (L), RC Gear Assembly and Loading Lever Assembly referring to Section 4-16.

(5) Remove the Coaster (Right) Assembly and Drive Gear (Right) Assembly referring to 4-19.

(6) Remove two fixing screws and remove Reinforcement Plate SS Assembly.

(7) Remove a fixing screw. Remove Coaster Leaf Spring and Coaster (Left) Assembly.

(8) Remove stopper washer 1.5 and remove Drive Gear (Left) Assembly.

Installation:

(1) Smear a grease to the mechanical chassis as shown in fig. A.

(2) Apply a half drop of oil to the shaft. (Fig. E)

(3) Smear a grease to the pin, shaft and projection of the Coaster (Left) Assembly. (Fig. B)

(4) Install the pin and shaft of the Coaster (Left) Assembly to the longitudinal hole of the mechanical chassis.

(5) Put the Drive Gear (Left) Assembly into the shaft and put the A portion into the longitudinal hole. Install the gear portion so that the gear portion is engaged with Wheel Gear and UL Gear.

(6) Put the hole of the Drive Gear (Left) Assembly to the pin of the Coaster (Left) Assembly.

(7) Fasten the stopper washer 1.5.

(8) Put the Coaster Leaf Spring to the shaft and pin of the Coaster (Left) Assembly and install it with fixing screw. At this time, the tightenning torque of the fixing screw is about 500 g.cm. If tightened too much, the Coaster (Left) Assembly and Coaster Leaf Spring will be damaged.

(9) Put the Reinforcement Plate SS Assembly to the projection of chassis and tighten the two fixing screws in order.

(10) Smear a grease as shown in figures C and D.

(11) Install the Coaster (Right) Assembly and Drive Gear (Right) Assembly referring to Section 4-19.

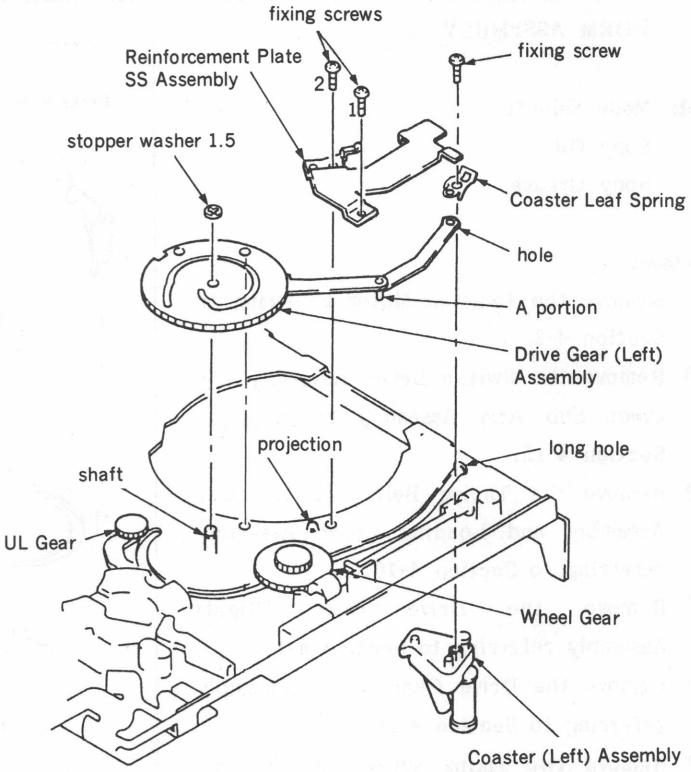
(12) Install the Timing Belt (L), RC Gear Assembly and Loading Lever Assembly referring to Section 4-16.

(13) Install the Switch Lever Assembly and Pinch Sub Arm Assembly referring to Section 4-15.

(14) After putting the unit into the [ULD] mode, install the Drum Assembly referring to Section 4-14.

(15) Install the Capstan Motor refering to Section 4-3.

Note: After replacement, perform the Tape Path Adjustment referring to Section 6.



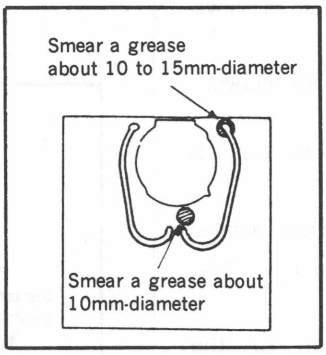


Fig. A

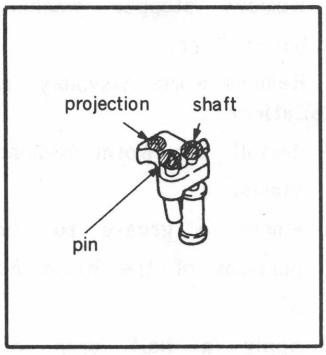


Fig. B

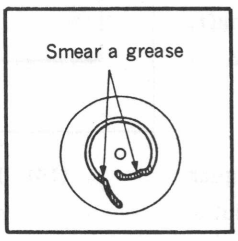


Fig. C

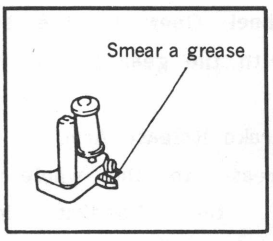


Fig. D

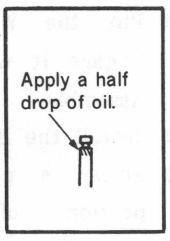
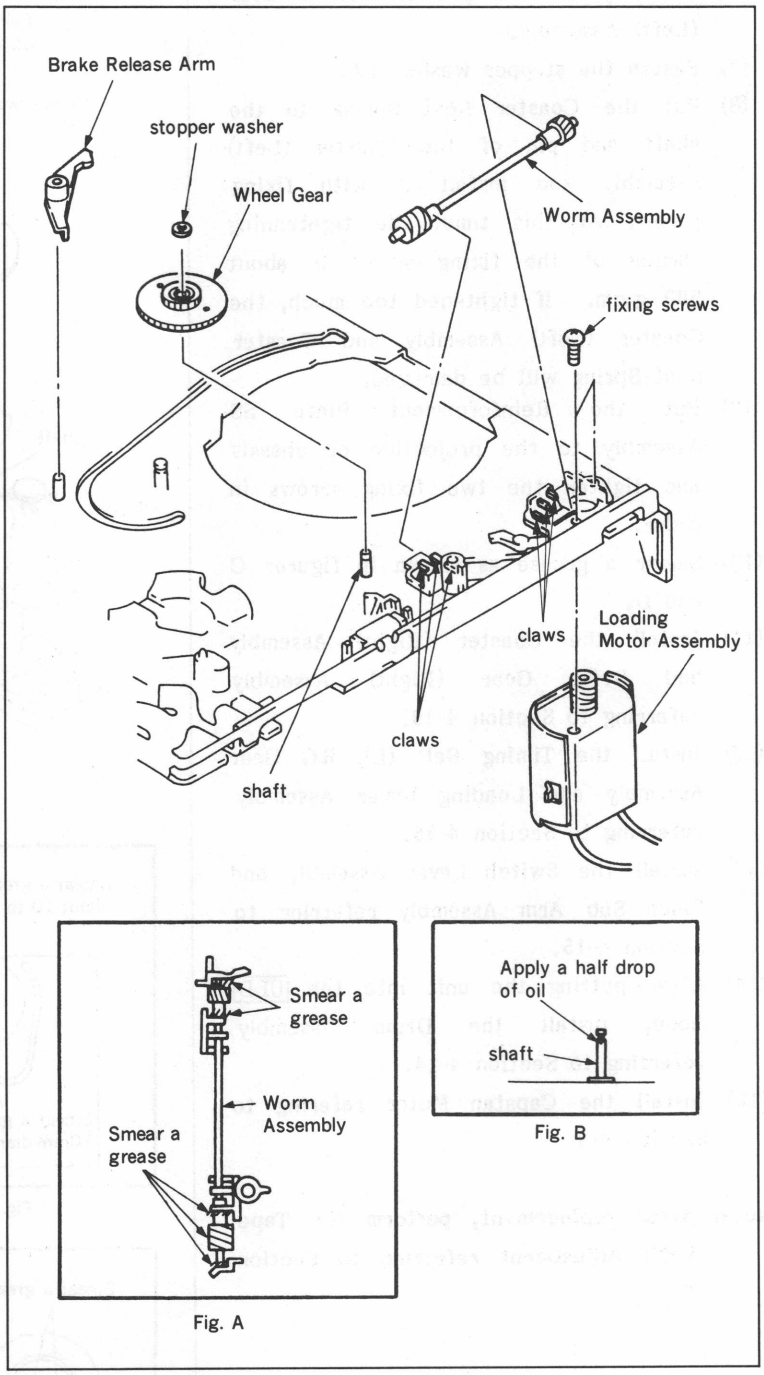


Fig. E

4-21. REPLACEMENT OF LOADING MOTOR, BRAKE RELEASE ARM, WHEEL GEAR AND WORM ASSEMBLY

Tool: Mode Selector
Sony Oil
Sony Grease



Removal:

(1) Remove the Capstan Motor referring to Section 4-3.
(2) Remove the Switch Lever Assembly and Pinch Sub Arm Assembly referring to Section 4-15.
(3) Remove the Timing Belt (L), RC Gear Assembly and Loading Lever Assembly referring to Section 4-16.
(4) Remove the Drive Gear (Right) Assembly referring to Section 4-19.
(5) Remove the Drive Gear (Left) Assembly referring to Section 4-20.
(6) Remove two fixing screws and remove Loading Motor Assembly.
(7) Remove Brake Release Arm.
(8) Remove stopper washer and remove Wheel Gear.
(9) Remove Worm Assembly from six claws.

Installation:

(1) Install the Worm Assembly to the six claws.
(2) Smear a grease to the five shaded portions of the Worm Assembly. (Fig. A)
(3) Apply a half drop of oil to the shaft. (Fig. B)
(4) Put the Wheel Gear to the shaft. Engage it with the gear of the Worm Assembly.
(5) Install the Brake Release Arm.
(6) Smear a grease to the whole gear portion of the Loading Motor Assembly.
(7) Install the Loading Motor Assembly to the mechanical chassis with the two fixing screws.
(8) Install the Drive Gear (Left) Assembly referring to Section 4-20.
(9) Install the Drive Gear (Right) Assembly referring to Seciton 4-19.
(10) Install the Timing Belt (L), RC Gear Assembly and Loading Lever Assembly referring to Section 4-16.
(11) Install the Switch Lever Assembly and Pinch Sub Arm Assembly referring to Section 4-15.
(12) After putting the unit into the ULD mode, install the Capstan Motor referring to Section 4-3.

4-22. REPLACEMENT OF ROTARY UPPER DRUM

Tool: Rotary Drum Tool
(supplied accessory of Repair Rotary Upper Drum)
L-shaped wrench
(across flat has 1.5 mm)

Removal:

(1) Unsolder six solders at A portion. Check that six terminals which are projected out from PC Board can be moved freely with a pair of tweezers, etc..

(2) Remove two fixing screws A. (Fig. A)

(3) Install tool A to the screw hole with two accessory supplied screws. Thread the accessory supplied hexagonal screws into the tool A, and Rotary Upper Drum will move up and can be removed. (Fig. B)

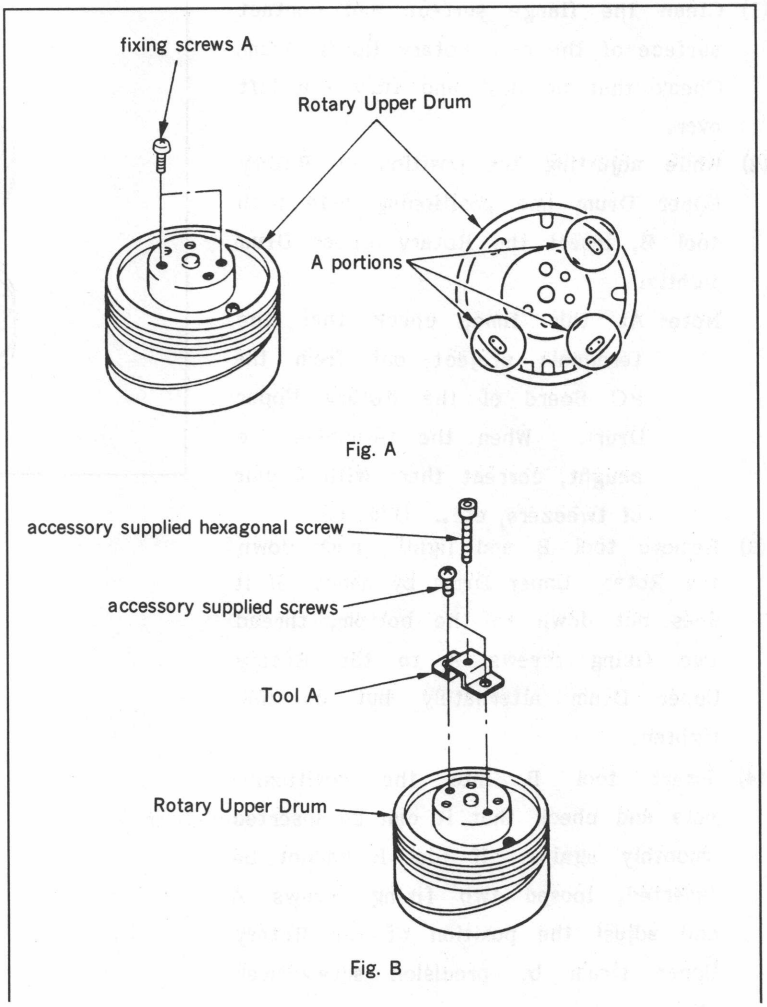


Fig. A

Fig. B

Installation:

(1) Clean the flange surface and contact surface of the new Rotary Upper Drum. Check that no dust and flaw are left over.

(2) While adjusting the position of Rotary Upper Drum and positioning hole with tool B, insert the Rotary Upper Drum lightly.

Note: At this time, check that the terminals project out from the PC Board of the Rotary Upper Drum. When the terminals are caught, correct them with a pair of tweezers, etc.. (Fig. C)

(3) Remove tool B and lightly push down the Rotary Upper Drum by hand. If it does not down to the bottom, thread two fixing screws A to the Rotary Upper Drum alternately but do not tighten.

(4) Insert tool B into the positioning hole and check that it can be inserted smoothly again. If tool B cannot be inserted, loosen two fixing screws A and adjust the position of the Rotary Upper Drum by precision screwdriver etc..

(5) Tighten two fixing screws A.

(6) Solder the six terminals at the A portion.

Note: Be careful not to flow solder below the PC Board.

Note: After replacemnt, perform the Tape Path Adjustment referring to Section 6.

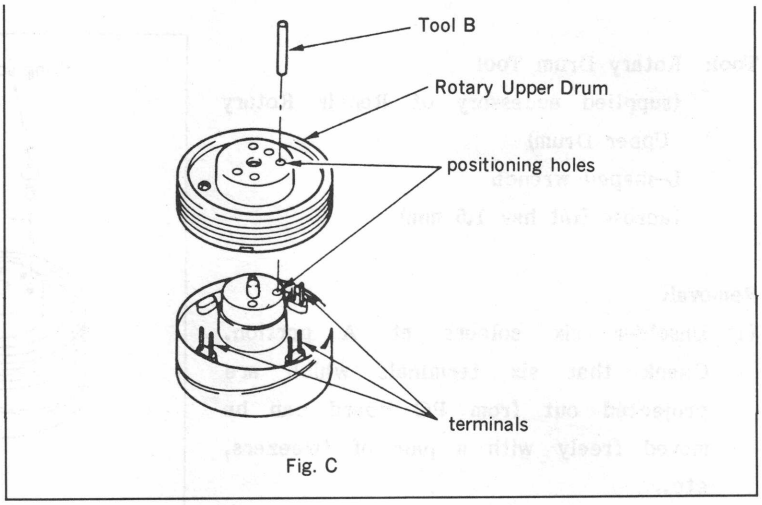


Fig. C

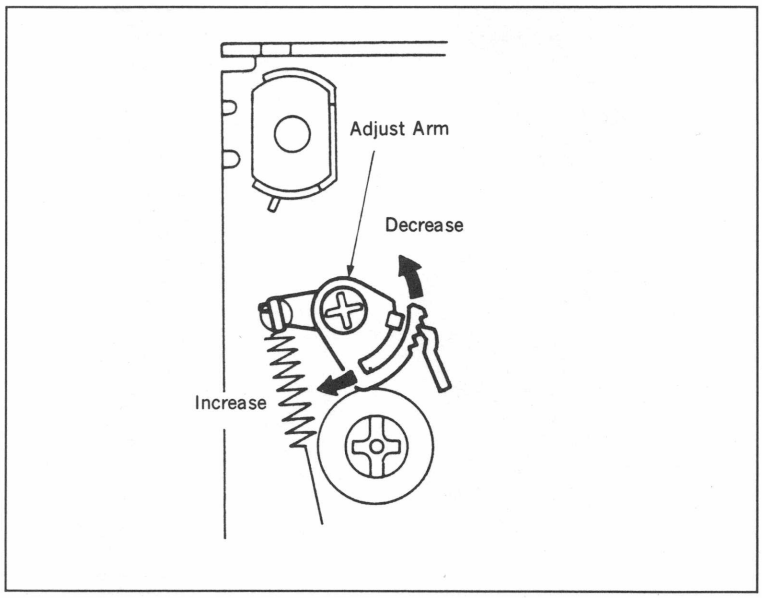
SECTION 5
TORQUE AND BACK TENSION ADJUSTMENT

5-1. FWD BACK TENSION ADJUSTMENT

(1) Insert a torque cassette to the unit.
(2) Put the unit into the PLAY mode. Check that the torque reading of S Reel Table meets required specification.

Spec. : 9 to 13 g.cm

(3) If the torque reading do not meet the required specification, adjust the Adjust Arm.



5-2. CHECK OF REEL TORQUE

. Setting of REV mode
Press PLAY button and then, press REW button continuously.

(1) Insert a torque cassette to the unit.
(2) Put the unit into the PLAY mode and check that the torque reading of T Reel Table meets required specification.

Spec. : 7 to 15 g.cm

(3) Put the unit into the REV mode and check that the torque reading of the S Reel Table meets required specification.

Spec. : 23 to 35 g.cm

(4) Put the unit into the REV mode and check that the torque reading of the T Reel Table meets required specification.

Spec. : 13 to 25 g.cm

(5) If the readings do not meet the required specifications, replace each Reel Table.

SECTION 6
TAPE PATH ADJUSTMENT

Alignment Information

[Track Shift]

8mm Video System employs a high precision tracking ATF (Automatic Track Finding) System which instantaneously controls tape running speed with four kinds of pilot signals. In this way, Tracking Adjustment Knob is unnecessary and it is possible to trace with accuracy. On the other hand, the adjustment of Tape Pathe System was difficult in the ATF System. It was impossible to adjust perfectly becasuse the ATF System automatically corrected even it small miss-tracking occurs. When perform Tracking Fine Adjustment, put into the Track Shift mode. The Track Shift mode can forcibly operate the ATF System and can shift the constant tracking amount about one-fifth. Therefore, the Tracking Fine Adjustment can perform easily. Track Shift Tool is not required.

Setting of Track Shift Mode

. Connect TP1 and TP2 on the SY-153 to grounds with shorting clips.

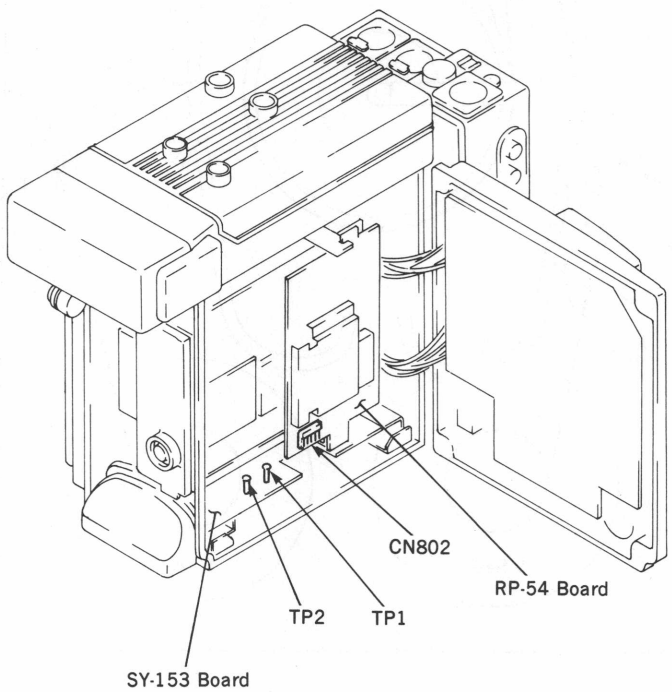
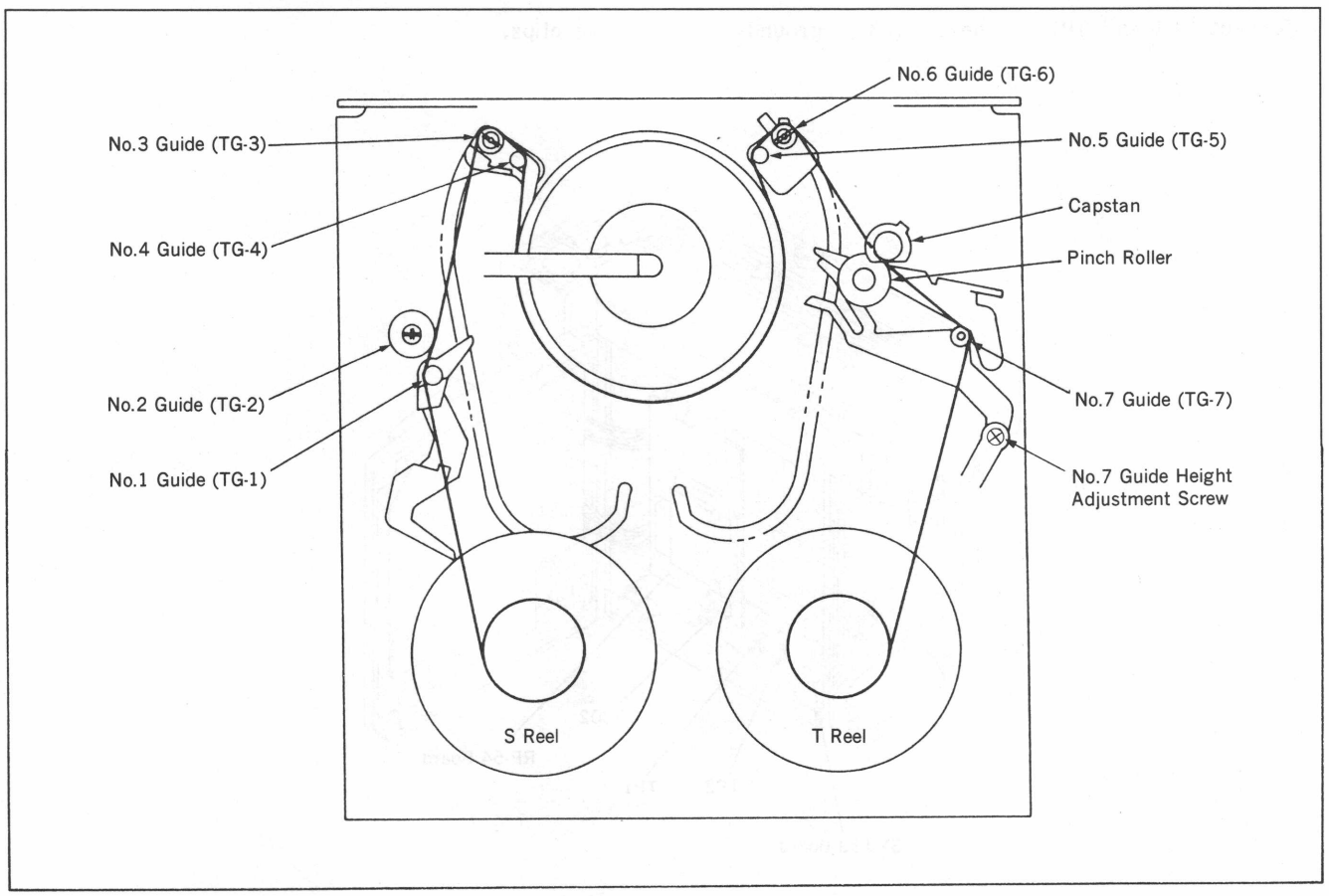


Fig. A

[Tape Guide Adjustment]

There are four Adjustment Guides as TG-2, 3, 6, and 7 Guides. If you want to adjust each guide, turn the Adjustment Screw as follows.

Guide	Adjustment Screw	Guide Adjustment
TG-2, 3, 6	Counter-clockwise	Up
	Clockwise	Down
TG-7	Counter-clockwise	Down
	Clockwise	Up



6-1. PREPARATION FOR ADJUSTMENT

Tool: Oscilloscope
Alignment tape for tracking
(WR5-1NP)

Adjustment procedure:

(1) Clean tape path surfaces as Tape Guides, Drum, Capstan Shaft and Pinch Roller.

(2) Connect the oscilloscope as follows.
CH-1: CN802 pin-4 (PB RF OUT) on the RP-54 Board
Refer to page6-1 fig. A.

(3) Connect CN802 pin-6 (GND) and CN802 pin-2 (RF SW. P) on the RP-54 Board with a shoting clip. Refer to page6-1 fig. A.

(4) Play back the alignment tape.

(5) Check that the RF waveform of both entrance and exit sides are flat. (Fig. A)

(6) Set the Track Shift mode.

(7) Check that the form and fluctuation of the RF waveform meet the specification 1. (Fig. B)

(8) If do not meet the specifications at step (5) and (7), adjust as follows.

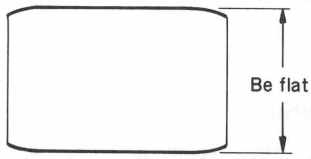
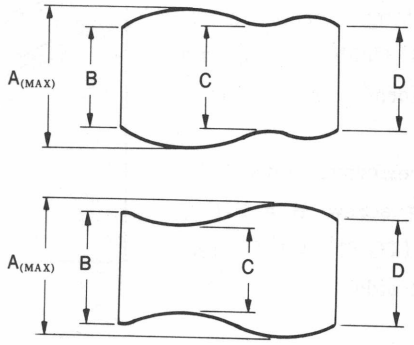


Fig. A

Head-to-tape contact



Fluctuation

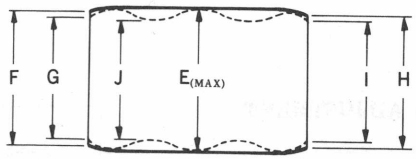


Fig. B

Spec. 1 :
- Head-to-tape contact

$\frac{B}{A} \geqq 0.7$

$\frac{C}{A} \geqq 0.7$

$\frac{D}{A} \geqq 0.7$

- Fluctuation

$\frac{G}{F} \geqq 0.85$

$\frac{J}{E} \geqq 0.85$

$\frac{I}{H} \geqq 0.85$

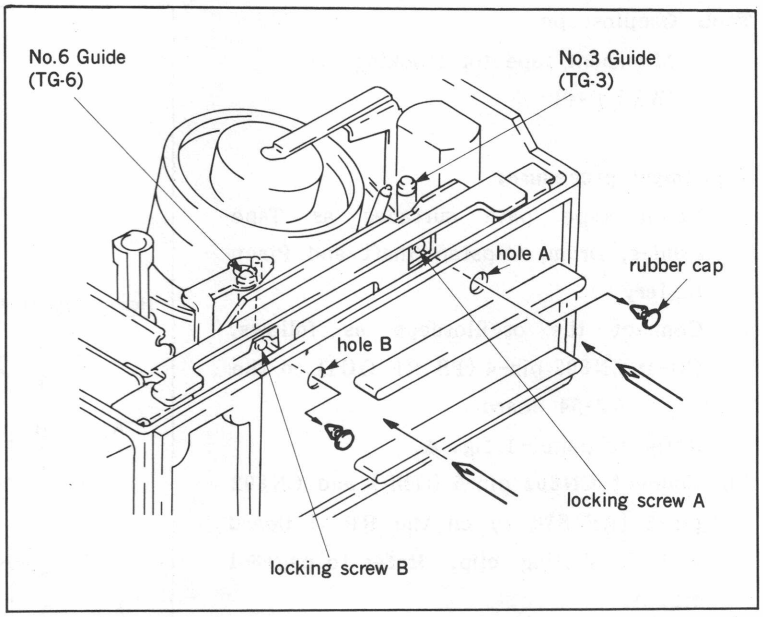
6-2. TRACKING ADJUSTMENT

Tool: Oscilloscope
Alignment tape for tracking
(WR5-1NP)

Adjustment procedure:

(1) Remove rubber caps from holes A and B.
(2) Play back the alignment tape.
(3) Put a precision screwdriver into hole A and loosen locking screw A a little. Turn No. 3 Guide (TG-6) and flatten the waveform of entrance side.
(4) Put a precision screwdriver into hole B and loosen locking screw B a little. Turn No. 6 Guide (TG-6) and flatten the waveform of exit side.

Note: Be careful not to turn the locking screws so much or the guides will move easily.



6-3. TRACKING FINE ADJUSTMENT

Tool: Oscilloscope
Alignment tape for tracking
(WR5-1NP)
Cassette tape (E6-120ME)

Adjustment procedure:

(1) Set the Track Shift mode.
(2) Play back the alignment tape.
(3) Perform Tape Entrance Side Adjustment.
  (i) Turn the No. 3 Guide so that the form and fluctuation of the RF waveform meet specification 1. (Fig. A)
  (ii) Tighten locking screw A. Check that the waveform of entrance side does not change.

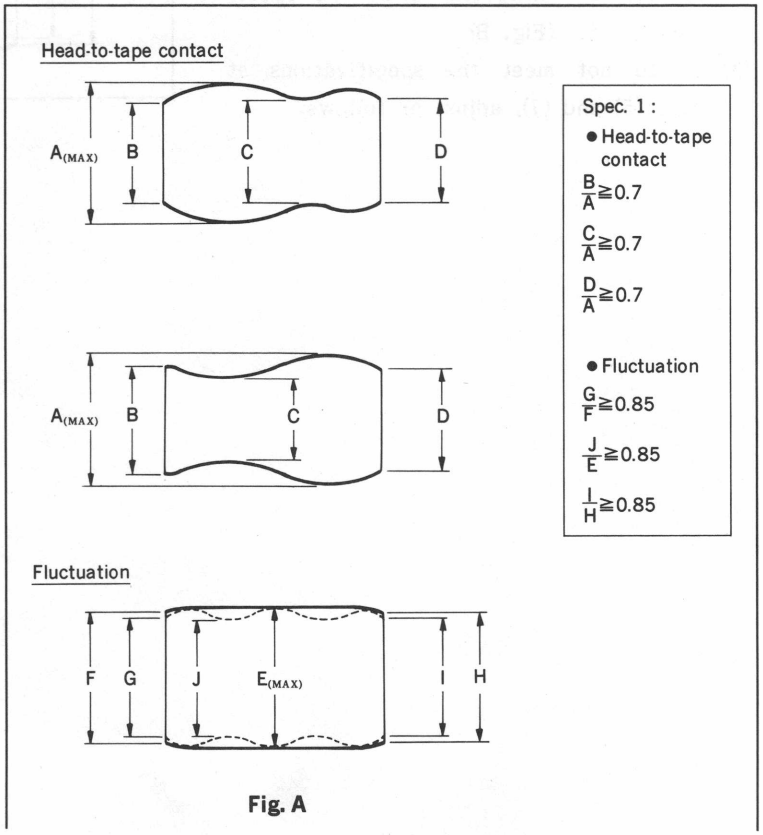


Fig. A

(4) Peform Tape Exit Side Adjustment.

(i) Turn the No. 6 Guide so that the form and fluctuation of the RF waveform meet specification 1. (Fig. A)

When the RF waveform of exit side is flat.

(ii) Turn the No. 6 Guide clockwise a little and adjust the waveform as shown in fig. B.

(iii) Tighten locking screw B. Check that the waveform of exit side does not change.

(5) Perform Waveform Check of the Self-recording and Play Back.

(i) Eject the alignment tape.

(ii) Perform the recording with no signal to the cassette tape which part is between tape top and tape middle.

(iii) Check that the form and fluctuation of the RF waveform meet specification 2. (Fig. C) If do not meet the specification, perform steps (2) to (4) again.

(6) After adjustment, perform Section 6-7. Check After Adjustment.

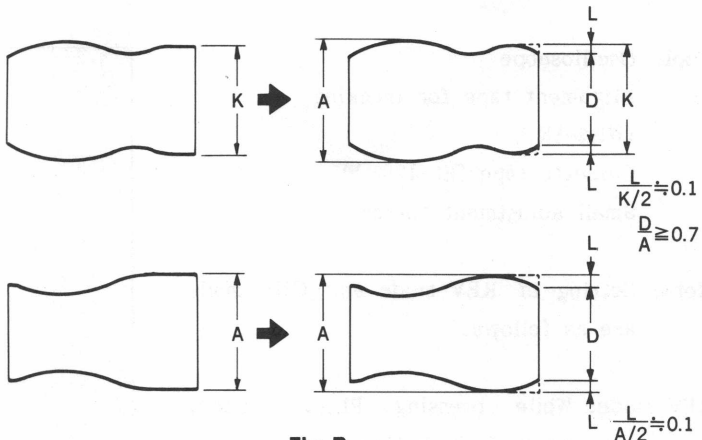
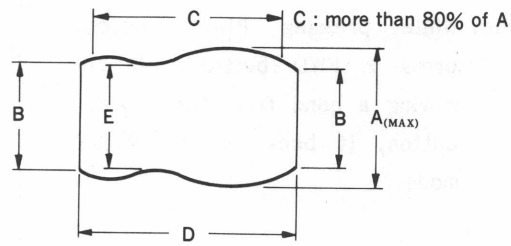
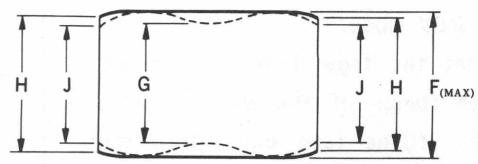


Fig. B

Head-to-tape contact



Fluctuation



Spec. 2:

• Head-to-tape contact	$\frac{B}{A} \geqq 0.7$	$\frac{C}{D} \geqq 0.8$	$\frac{E}{A} \geqq 0.8$
• Fluctuation	$\frac{G}{F} \geqq 0.9$	$\frac{J}{H} \geqq 0.9$	

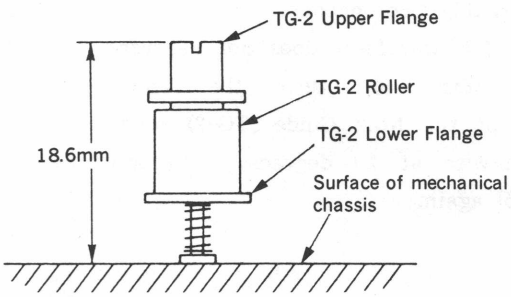
Fig. C

6-4. NO. 2 GUIDE ADJUSTMENT

When turning or replacing No. 2 Guide, adjust after performing No. 2 Guide (TG-2) Height Preset.

6-4-1. No. 2 Guide (TG-2) Height Preset

(1) Turn TG-2 Upper Flange and adjust the height of the TG-2 as shown in the figure.



6-4-2. No. 2 Guide (TG-2) Adjustment

Tool: Oscilloscope
Alignment tape for tracking (WR5-1NP)
Cassette tape (E6-120ME)
Small adjustment mirror

Note: Setting of REV mode and CUE mode are as follows.

REV mode: While pressing PLAY button, press REW button. If removing a hand from the REW button, it back to the PLAY mode.

CUE mode: While pressing PLAY button, press F FWD button. If removing a hand from the F FWD button, it back to the PLAY mode.

Adjustment procedure:

(1) Play back a cassette tape and put into the REV mode.

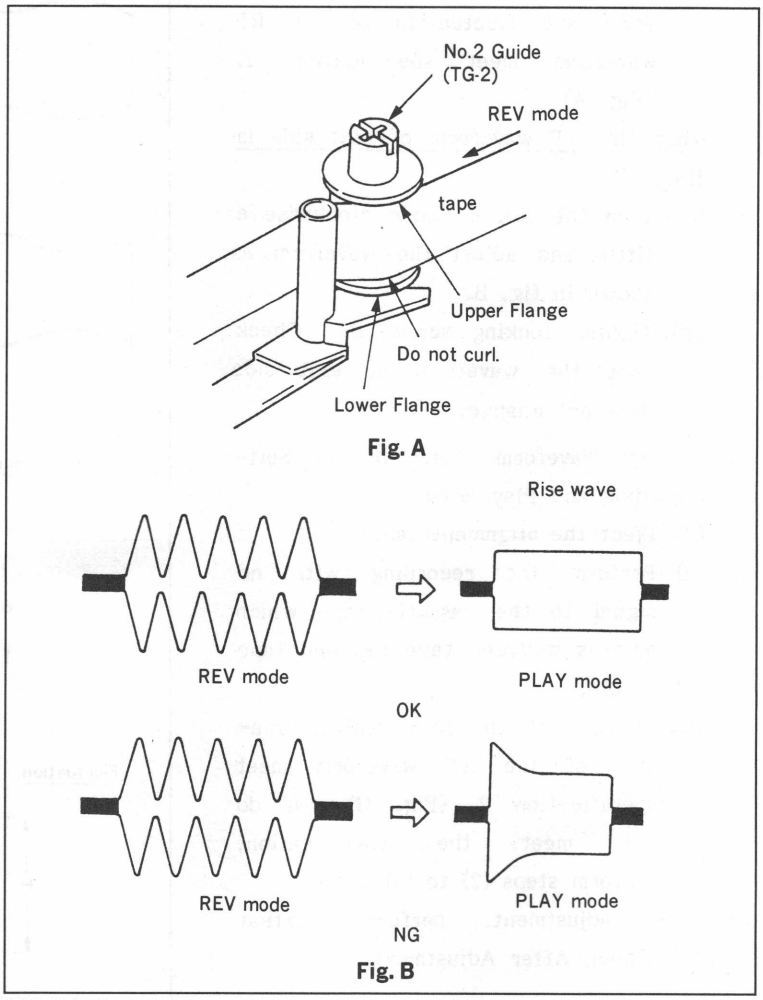
(2) Check that the tape does not curl at the lower flange of the No. 2 Guide. (Fig. A) If the tape curls, turn the upper flange of the No. 2 Guide clockwise with a screwdriver and lower the guide untill the tape curl disappears.

(3) Play back the alingment tape.

(4) Perform the Tracking Adjustment and Tracking Fine Adjustment referring to Sections 6-2 and 6-3.

(5) Put into the Track Shift mode and play back after the CUE/REV mode. Check that the RF waveform recovers flatly within two seconds.

(6) If the RF waveform does not recovers flatly (Fig. B), turn the upper flange of the No.2 Guide (TG-2) counterclockwise at 90 degrees. Perform step (5) again.

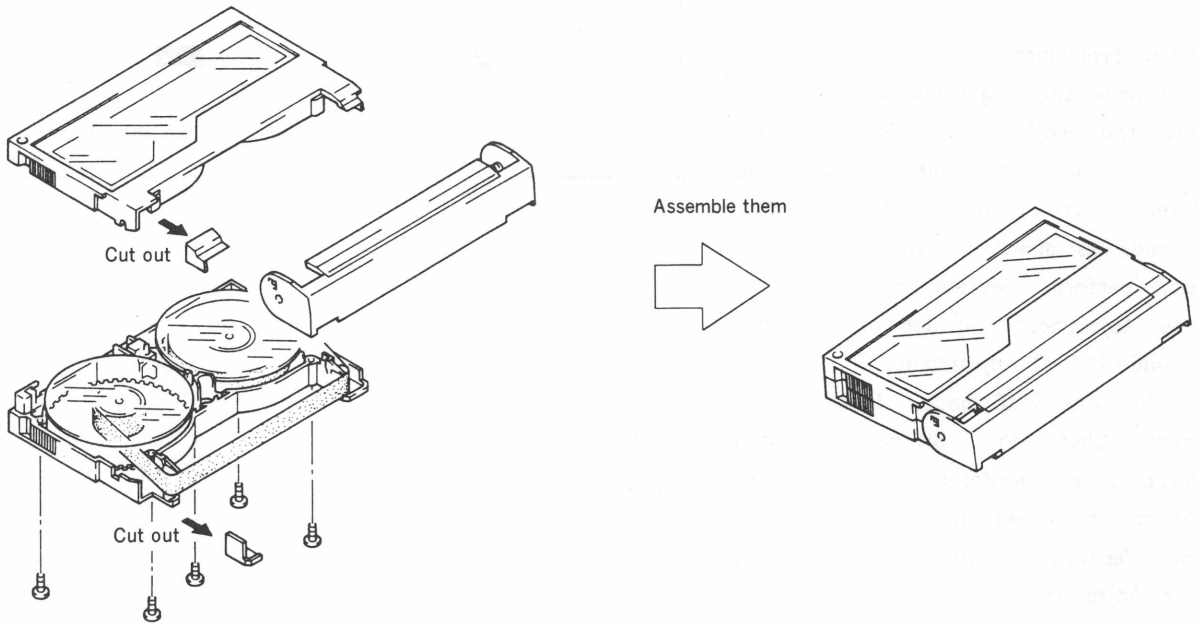


(7) Repeat steps (5) and (6) untill the correct waveform can be obtain. At this time, check that the tracking waveform has not changed.

(8) If the tracking waveform has changed, perform the Entrance Side Tracking Fine Adjustment and perform step (5) again.

6-5. No. 7 GUIDE (TG-7) ADJUSTMENT

. The No. 7 Guide (TG-7) Height Adjustment Screw is away from the No. 7 (TG-7) Guide. Refer to Alignment Information. Therefore, modify a cassette tape (E6-120ME) as shown in the figure and it is possible to adjust the No. 7 Guide in the PLAY mode.



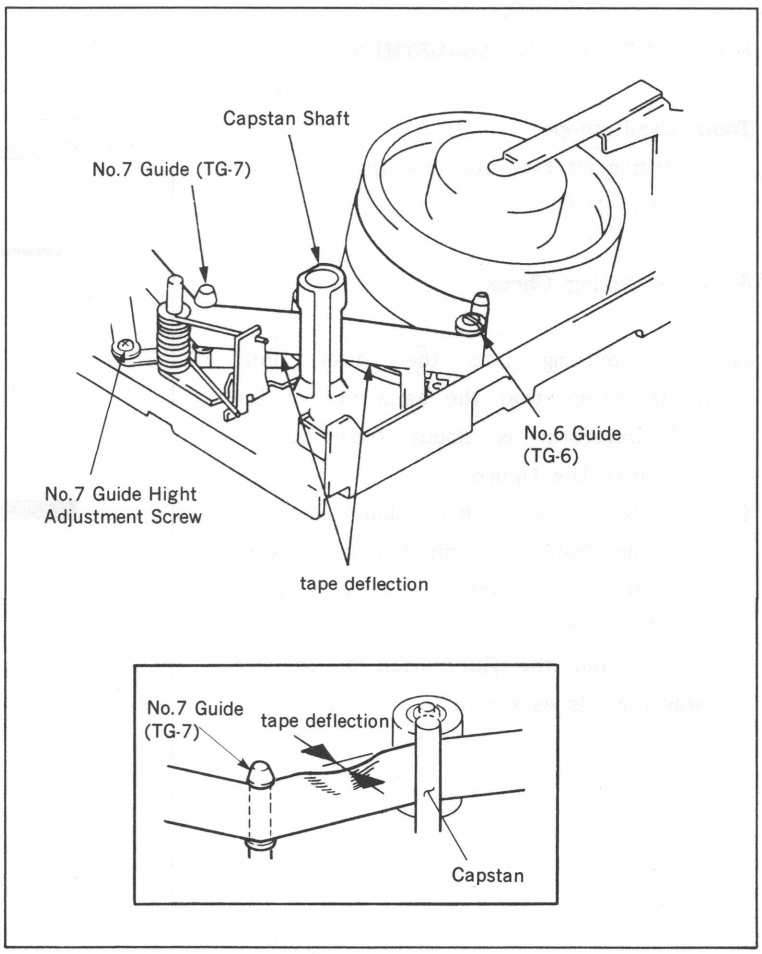
Tool: Modified cassette tape (E6-120ME)
Small adjustment mirror

Adjustment procedure:

(1) Play back the modified cassette tape which has been backed twenty minutes from tape end and put into the REV mode.

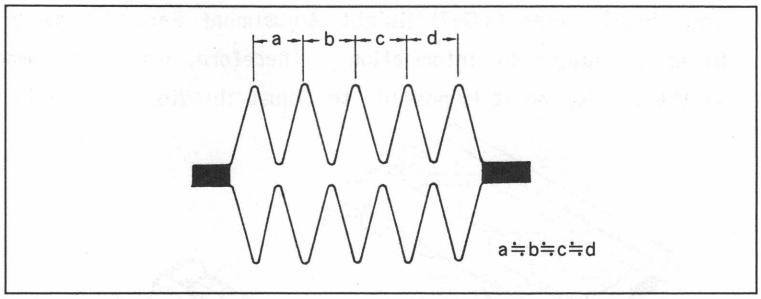
(2) Check that the tape deflection between the No. 6 Guide (TG-6) and Capstan Shaft is less than 0.5 mm. If it is more than 0.5 mm, turn and adjust the No. 7 Guide (TG-7) Height Adjustment Screw.

(3) Play back the modified cassette tape again and check that the tape deflection between the No. 7 Guide (TG-7) and Capstan Shaft is less than 0.5 mm. If it is more than the 0.5 mm, turn and adjust the No. 7 Guide (TG-7) Height Adjustment Screw. When putting into the REV mode, check that the tape deflection between the No. 6 Guide (TG-6) and Capstan Shaft is less than 0.5 mm.



6-6. CHECK OF CUE AND REV WAVEFORMS

Tool: Oscilloscope
Alignment tape for tracking
(WR5-1NP)



Adjustment procedure:

(1) Play back the alignment tape and put into the REV mode. In this time, check that the pitches of the waveform are uniform more than five seconds as shown in the figure. If not, perform Section 6-3. Tracking Fine Aqjustment and Section 6-5. No. 7 Guide (TG-7) Adjustment.

(2) Put into the CUE mode. In this time, check that the pitches of the waveform are uniform more than five seconds as shown in the figure. If not, perform Section 6-3. Tracking Fine Adjsutment.

6-7. CHECK AFTER ADJUSTMENT

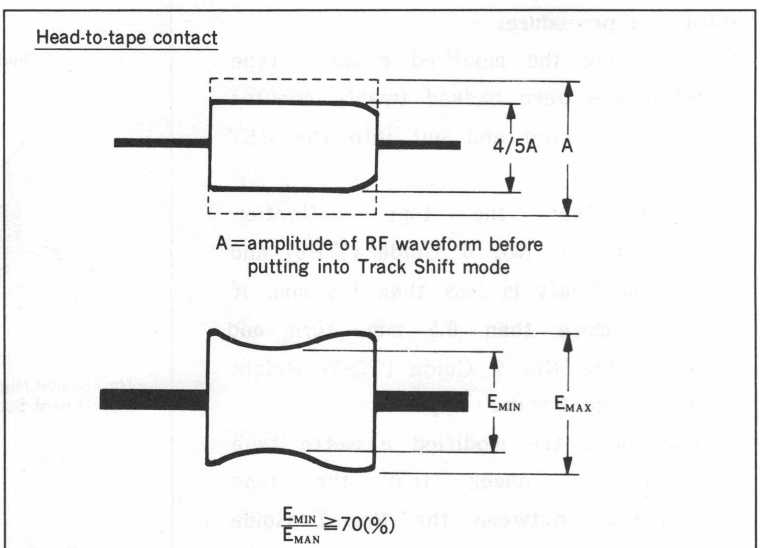
Tool: Oscilloscope
Alignment tape for tracking
(WR5-1NP)

6-7-1. Tracking Check

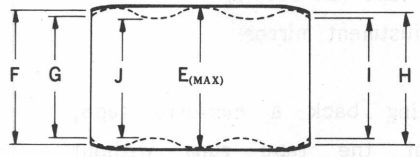
(1) When putting into the Track Shift mode, check that the amplitude of the RF waveform is about four-fifth as shown in the figure.

(2) In this time, check that amplitude minimum value (E min) is more than 70% of maximum value (E max) as shown in the figure.

(3) Check that the fluctuation of the RF waveform is as shown in the figure.



Fluctuation

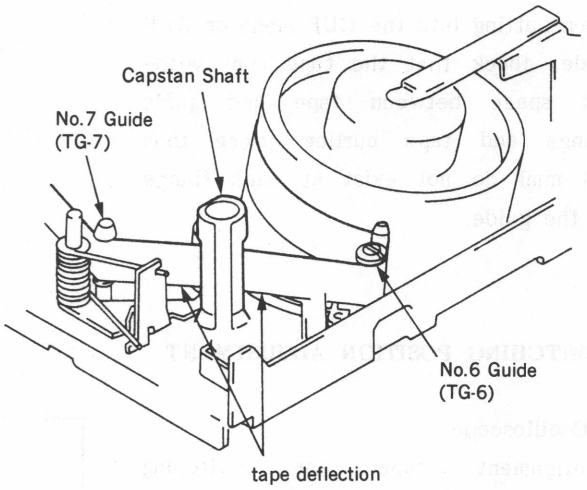


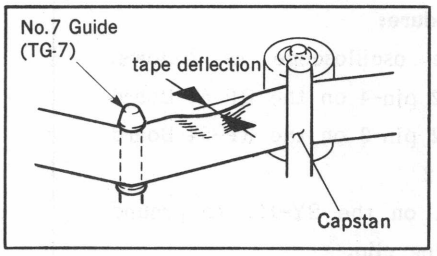
Fluctuation $\frac{G}{F} \geqq 0.85$ $\frac{J}{E} \geqq 0.85$ $\frac{I}{H} \geqq 0.85$

6-7-2. Recovery Check of waveform

Tool: Oscilloscope
Alignment tape for tracking
(WR5-1NP)
Small adjustment mirror

(1) Play back the alignment tape.
(2) Put the Track Shift mode to OFF.
(3) Put into the EJECT mode and perform threading again.
(4) Put into the PLAY mode and check that the RF waveform recovers flatly within 2.5 seconds. Then check that there is no tape deflection around the Pinch Roller.
(5) Play back the alignment tape after putting into the CUE/REV or FF/REW mode. Check that the RF waveform recovers flatly within 2.5 seconds. Then check that there is no tape deflection around the Pinch Roller.
(6) Repeat steps (3) to (5).





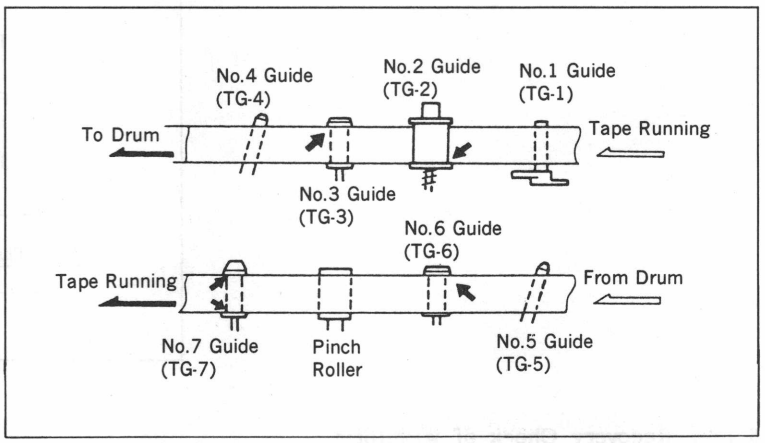
6-7-3. Tape Running Check

Tool: Cassette tape (E6-120ME)
Small adjustment mirror

(1) When playing back a cassette tape, check that the tape runs without space between tape and guide flange and tape curling (more than 0.3mm) do not exist at five positions.

Lower flange of No. 2 Guide
Upper flange of No. 3 Guide
Upper flange of No. 6 Guide
Lower and upper flanges of No. 7

(2) When putting into the CUE mode or REV mode, check that the tape runs without space between tape and guide flange and tape curling (more than 0.3 mm) do not exist at each flange of the guide.

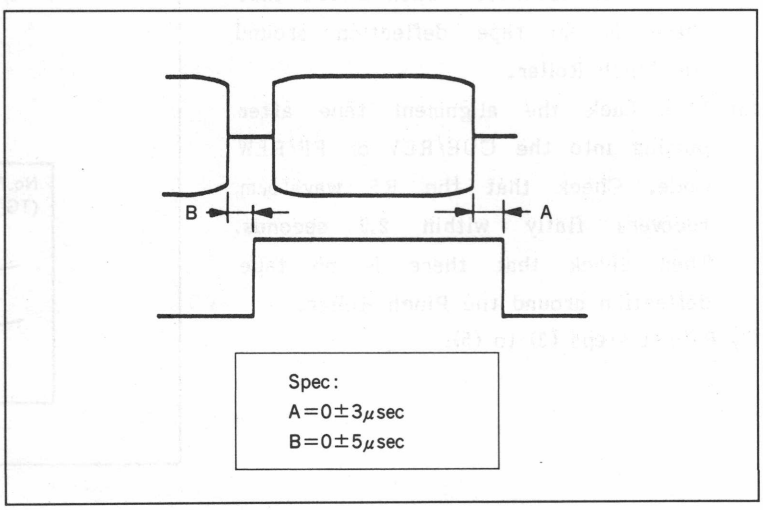


6-8. SWITCHING POSITION ADJUSTMENT

Tool: Oscilloscope
Alignment tape for switching position adjustment (WR2-3NS)

Adjustment procedure:

(1) Connect the oscilloscope as follows.
CH-1: CN802 pin-4 on the RP-54 Board
CH-2: CN802 pin-2 on the RP-54 Board
Trigger: CH-2
(2) Connect TP1 on the SY-153 to ground with a shorting clip.
(3) Play back the alignment tape.
(4) Adjust RV002 on the SS-43 to meet specification A.
(5) Check that it meets specification B within specification A.
(6) After adjustment, disconnect a shorting clip.



SECTION 7
POWER SUPPLY AND SYSTEM CONTROL ALIGNMENT

[Equipment Required]

- 3-CCD Color Video Camera (DXC-325)
- Variable voltage power supply
- Oscilloscope
- Digital voltmeter
- Frequency counter
- Shorting clip
- Blank tape (P6-60MP or equivalent)

7-1. POWER SUPPLY ALIGNMENT

When repairing or replacing DC-DC converter, be sure to perform the adjustment as follows.

7-7-1. DC-DC Converter Frequency Adjustment

Machine conditions for adjustment	Specifications	Adjustments
• DC IN 12V: 12.00V • EE mode	Q113-collector/PS-209(B-2) 308±2kHz	◐ RV101/PS-209(A-2)

7-7-2. DC-DC Converter Voltage Adjustment

Machine conditions for adjustment	Specifications	Adjustments
• DC IN 12V: 12.00V • EE mode	+5V adjustment CN7-3/PS-209(D-3) +5.00±0.05V	◐ RV111/PS-209(C-2)
	−5V adjustment CN7-7/PS-209(D-3) −5.00±0.05V	◐ RV221/PS-209(D-1)
	+7V adjustment CN6-1/PS-209(C-1) +7.00±0.05V	◐ RV241/PS-209(C-2)

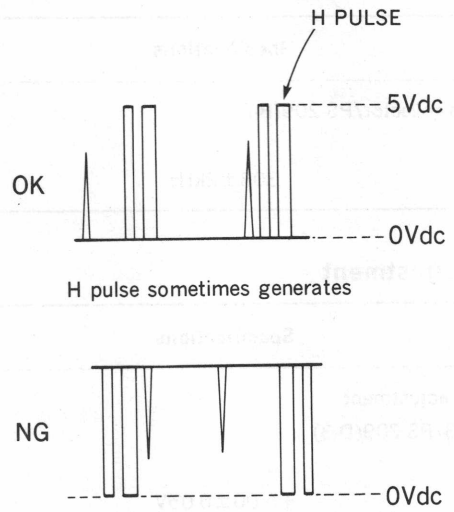
7-2. SYSTEM CONTROL ALIGNMENT

Note : When perform this alignment, assemble VTR and a camera (DXC-325, 3-CCD color video camera).

7-2-1. Battery End Adjustment

<table>
<tr><th>Machine conditions for adjustment</th><th>Specifications</th><th>Adjustments</th></tr>
<tr><td rowspan="2">• METER SELECT swith: BATT (SIDE PANEL)
• Connect TP2 on the SY-153 Board (D-2) to GND with a shorting clip.
• POWER switch: ON
• Insert a P6-60MP cassette tape.
• REC mode

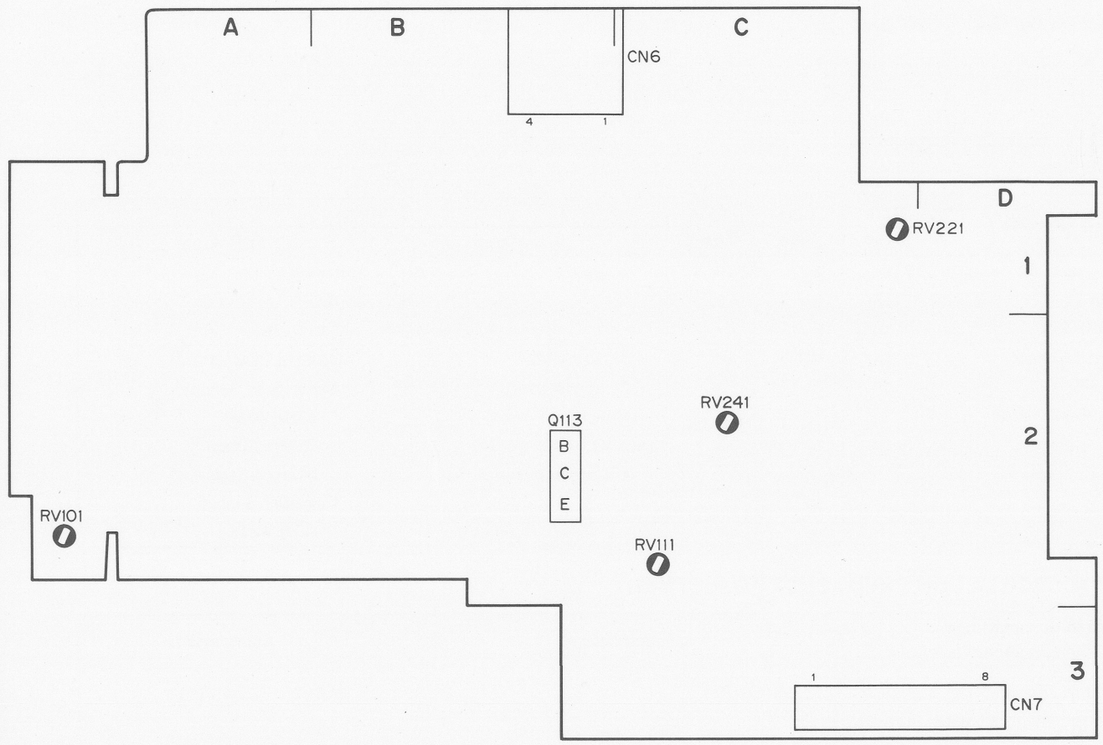
• After adjustmet, remove the shorting clip.</td><td>⊕: TP4/SY-153 (D-3)
⊖: TP5/SY-153 (D-2)

10.990±0.005Vdc</td><td>EXT DC Voltage</td></tr>
<tr><td>TP6/SY-153(D-2)
 
</td><td>◐ RV1/SY-153(E-3)</td></tr>
</table>

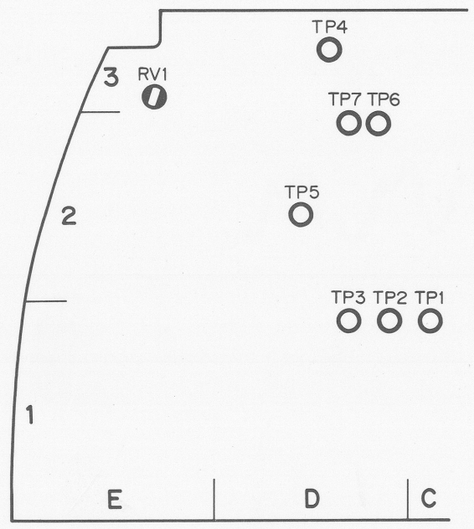
Locations of CNs, RVs and Q on the PS-209 Board A Side (Component Side).

Locations of RV and TPs on the SY-153 Board A side (Component Side).

Locations of CNs, RVs and Q on the PS-209 Board A Side (Component Side).



Locations of RV and TPs on the SY-153 Board A side (Component Side).



SECTION 8
SERVO SYSTEM ALIGNMENT

[Equipment Required]

- 3-CCD Color Video Camera (DXC-325)
- Oscilloscope
- Frequency counter
- Shorting clip
- Blank tape (P6-60MP or equivalent)
- Alignment tape

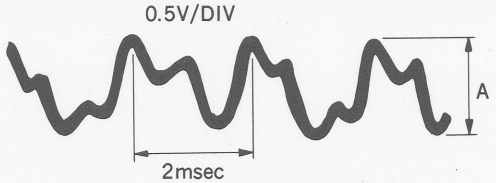
Name (Part No.)	REC mode	Tape Type	Tape Speed	Contents	
				Video Area	PCM Area
Switching position WR2-3NS (8-967-992-12)	STD	MP	SP	CH-1 : 3MHz CH-2 : 3MHz Marker Width : 100±10μsec.	
SP operation check WR5-5NSP (8-967-995-42)	STD	MP	SP	VIDEO SIGNAL Color-bar 4min. Monoscope 4min. AUDIO SIGNAL(AFM) 400Hz 60%mod.	AUDIO SIGNAL (PCM) Monoscope Section 20Hz 20sec. 400Hz 20sec. 14kHz 20sec. Color-Bar Section 1kHz 4min.

8-1. PWM OSCILLATION FREQUENCY ADJUSTMENT

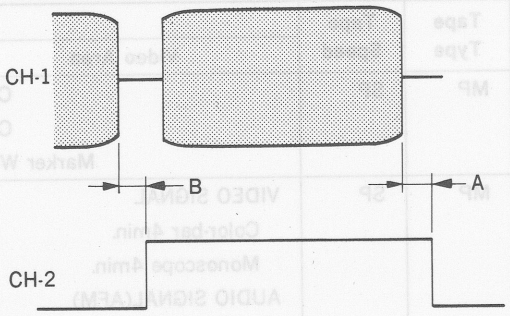
Machine conditions for adjustment	Specifications	Adjustments
• Play back the color-bar signal portion of the alignment tape WR5-5NSP.	TP201/SS-43(D-1) 480±2kHz	◐ RV201/SS-43(D-1)

8-2. CAPSTAN FG DUTY ADJUSTMENT

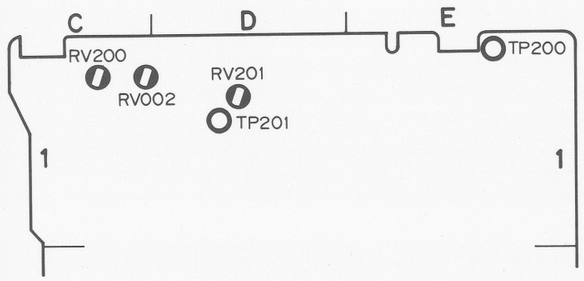
Note : When perform this adjustment, assemble VTR and a camera (DXC-325, 3-CCD color video camera).

Machine conditions for adjustment	Specifications	Adjustments
• Connect TP3 on the SY-153 Board (D-1) to GND with a shorting clip. • DXC-325 setting BARS/WB switch: BARS • Insert a P6-60MP cassette tape • REC mode • After adjustment, remove the shorting clip.	TP200/SS-43(E-1) 0.5V/DIV  2msec A≦400mV	◐ RV200/SS-43(C-1)

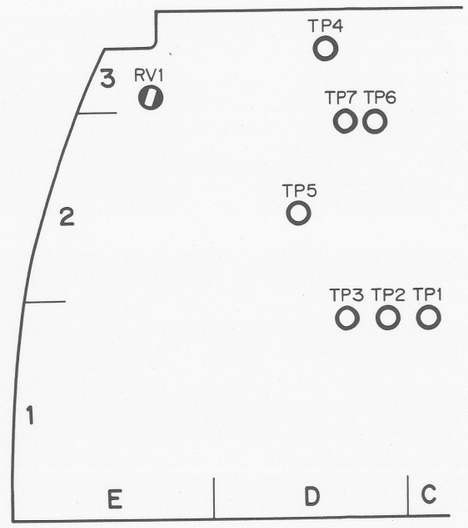
8-3. SWITCHING POSITION ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• Connect TP1 on the SY-153 Board (C-1) to GND with a shorting clip. • Play back the alignment tape WR2-3NS. • After adjustment, remove the shorting clip.	CH-1 : CN802-4/RP-54(A-2) CH-2 : CN802-2/RP-54(A-2)  A=0±3μsec B=0±5μsec	◐ RV002/SS-43(C-1)

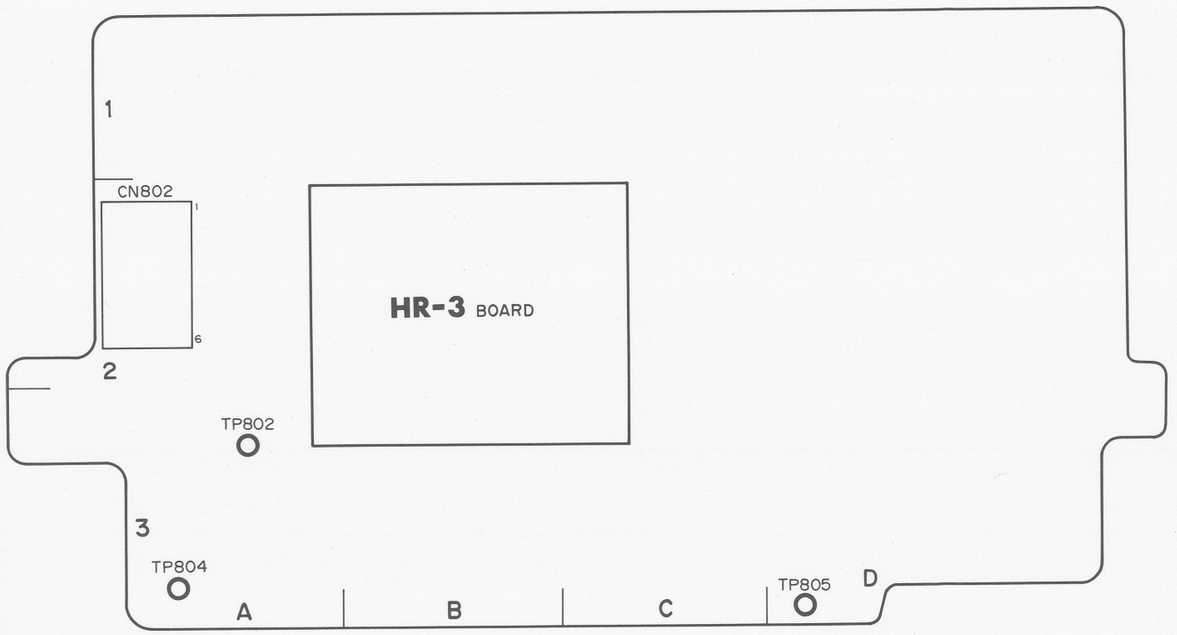
Locations of RVs and TPs on the SS-43 Board A Side (Component Side).



Locations of RV and TPs on the SY-153 Board A Side (Component side).



Locations of CN and TPs on the RP-54 Board A Side (Component Side).



Locations of RVs and TPs on the SS-43
Board A Side (Component Side).

Locations of RV and TPs on the SY-153
Board A Side (Component side).

Locations of CN and TPs on the RP-54 Board A Side (Component Side).

SECTION 9
AUDIO SYSTEM ALIGNMENT

[Equipment Required]

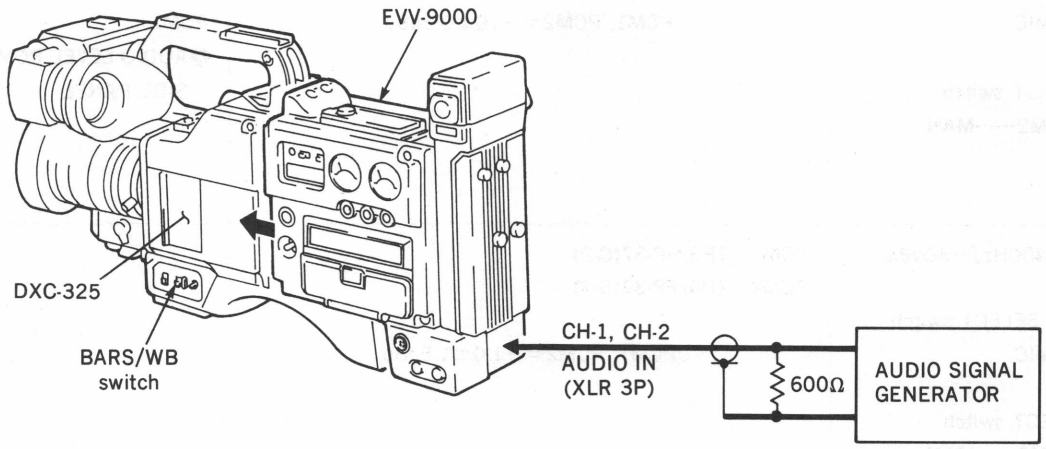
- 3-CCD Color Video Camera (DXC-325)
- Oscilloscope
- Frequency counter
- Audio signal generator
- Audio level meter
- Variable voltage power supply
- Shorting clips
- Blank tape (E6-60HIME or equivalent)
- Alignment tape

Name (Part No.)	REC mode	Tape Type	Tape Speed	Contents	
				Video Area	PCM Area
SP operation check WR5-8NSE (8-967-995-43)	Hi8	ME	SP	VIDEO SIGNAL Color-bar 4min. Monoscope 4min. AUDIO SIGNAL (AFM) 400Hz 60%mod.	AUDIO SIGNAL (PCM) 400Hz 20min.
LP operation check WR5-8NLE (8-967-995-52)	Hi8	ME	LP	VIDEO SIGNAL Color-bar 4min. Monoscope 4min. AUDIO SIGNAL (AFM) 400Hz 60% mod.	AUDIO SIGNAL (PCM) 400Hz 40min.

9-1. CONNECTION AND SWITCH SETTING

[Connection]

Note : EVV-9000 does not enter the REC mode without REF. SYNC input from the 50p connector. Connect as shown in the figure.



[SWITCH SETTING]
EVV-9000
• CONNECTOR BOX
CH-1 MIC/LINE ·····MIC
CH-2 MIC/LINE ·····MIC

• SIDE PANEL
AFM INPUT SELECT ·····AUDIO CH-1
AUDIO SELECT PCM1 ·····AUTO
PCM2 ·····AUTO
AFM ·····AUTO
MONITOR SELECT ·····PCM, MIX

• Do not touch these switches without particular indication.

9-2. PCM1 AGC ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• AUDIO IN: 400Hz/−60dBu • AFM INPUT SELECT switch : CAMERA MIC • EE mode	TP3/FP-37(C-2) −10±0.2dBu	◐ RV4/FP-37(B-1)

Note : 0dBu=0.775Vrms

9-3. PCM LIMITER ON CHECK

Machine conditions for adjustment	Specifications	Adjustments
• AUDIO IN: 400Hz/−60dBu • AFM INPUT SELECT switch : CAMERA MIC • AUDIO SELECT switch : PCM1, PCM2·····MAN • EE mode	PCM1 : TP3/FP-37(C-2) PCM2 : TP4/FP-37(B-4) PCM1, PCM2=−10±0.2dBu	PCM1 ◐ AUDIO LEVEL PCM1/ SIDE PANEL PCM2 ◐ AUDIO LEVEL PCM2/ SIDE PANEL
• AUDIO IN: 400Hz/−30dBu • AFM INPUT SELECT switch : CAMERA MIC • AUDIO SELECT switch : PCM1, PCM2·····MAN • EE mode	PCM1 : TP3/FP-37(C-2) PCM2 : TP4/FP-37(B-4) PCM1, PCM2=−1.0±1.5dBu	

9-4. AFM EE LEVEL ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• AUDIO IN: 400Hz/−60dBu • EE mode	TP101/AU-136(B-3) −10±0.2dBu	◐RV101/AU-136(A-4)

9-5. AFM AGC CHECK

Machine conditions for adjustment	Specifications	Adjustments
• AUDIO IN: 400Hz/−60dBu • AUDIO SELECT switch : AFM MAN • EE mode	TP1/FP-37(A-4) −30±0.2dBu	◐AUDIO LEVEL AFM/ SIDE PANEL
• AUDIO IN: 400Hz/−40dBu • AUDIO SELECT switch : AFM MAN • EE mode	TP101/AU-136(B-3) −4.5±2.0dBu	

9-6. MONITOR OUT LEVEL ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• AUDIO IN: 400Hz/−60dBu • MONITOR SELECT switch : PCM, PCM1 • EE mode	AUDIO OUT connector (terminated with 47kΩ) −10±0.2dBu	◐RV201/FP-37(C-4)

9-7. PCM MASTER CLOCK ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• Connect TP302/AU-136(E-4) and TP309/AU-136(D-5) with shorting clip. **Note** : Connect first the TP302/AU-136(E-4). • EE mode • After adjustment, remove the shorting clip.	TP303/AU-136(E-3) 11.45±0.01MHz	◐RV301/AU-136(E-3)

9-8. PCM PLAYBACK VCO FREE-FREQUENCY ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• Connect TP304/AU-136(D-5) and TP309/AU-136(D-5) with a shorting clip. • Connect TP305/AU-136(E-4) and TP309/AU-136(D-5) with a shorting clip. **Note** : Connect first the TP304/AU-136(D-5) and TP309/AU-136 (D-5). • Play back the Audio 400Hz portion of the alignment tape WR5-5NSP. • After adjustment, remove the shorting clips.	TP306/AU-136(D-3) 11.58±0.05MHz	RV302/AU-136(D-4)

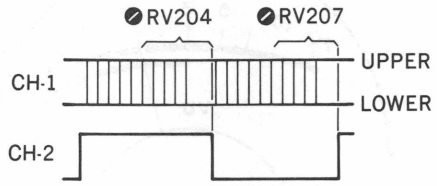
9-9. D/A CONVERTER LEVEL ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• Play back the Audio 400Hz portion of the alignment tape WR5-5NSP.	TP203/AU-136(B-4) −10±0.2dBu TP204/AU-136(B-3) −10±0.2dBu	◐RV206/AU-136(D-2) **Note :** If there is the level difference between the TP203 and TP204, adjust the RV206 to be on the center value.

9-10. NR DECODE LEVEL ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• Play back the Audio 400Hz portion of the alignment tape WR5-5NSP.	TP201/AU-136(A-2) −14.0±0.5dBu TP202/AU-136(A-2) −14.0±0.5dBu	◐RV203/AU-136(B-2) **Note :** If there is the level difference between the TP201 and TP202, adjust the RV203 to be on the center value.

9-11. A/D CONVERTER OFFSET ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• AUDIO IN: 400Hz/−∞ • AFM INPUT SELECT switch : CAMERA MIC • AUDIO SELECT switch : PCM1/PCM2 MAN • REC mode • Turn the AUDIO LEVEL PCM1/PCM2 control VRs fully counter-clockwise direction.	CH-1 : TP308/AU-136(D-1) CH-2 : TP307/AU-136(D-2)  Adjust upper and lower brightnesses to be the same.	PCM1 RV204/AU-136(D-3) PCM2 RV207/AU-136(C-4)

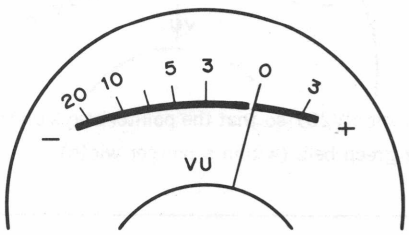
9-12. PCM EE LEVEL ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• AUDIO IN: 400Hz/−60dBu • EE mode	TP201/AU-136(A-2): PCM1 TP202/AU-136(A-2): PCM2 −18±0.2dBu	PCM1 RV201/AU-136(A-3) PCM2 RV202/AU-136(A-3)

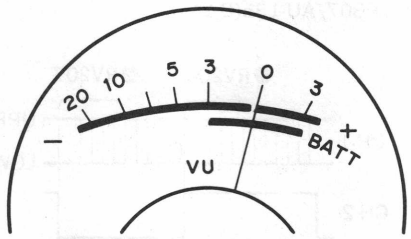
9-13. PCM REC LEVEL ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• AUDIO IN: 400Hz/−60dBu • Preform the self-recording/play back with a E6-60HIME.	TP201/AU-136(A-2): PCM1 TP202/AU-136(A-2): PCM2 −14±0.5dBu	PCM1 RV205/AU-136(D-3) PCM2 RV208/AU-136(D-3)

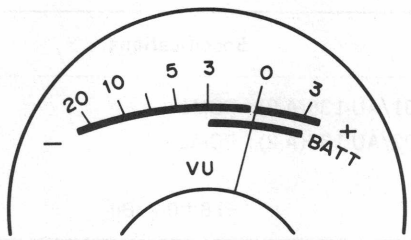
9-14. PCM1 METER ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• AUDIO IN: 400Hz/−60dBu • AFM INPUT SELECT switch : CAMERA MIC • METER SELECT switch : PCM1 • EE mode	PCM1 level meter  The pointer should stay at 0.	RV204/FP-37(C-1)

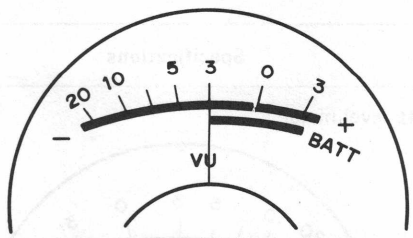
9-15. PCM2 METER ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• AUDIO IN: 400Hz/−60dBu • METER SELECT switch : PCM2 • EE mode	PCM2/AFM/BATT level meter  The pointer should stay at 0.	◐RV206/FP-37(A-1)

9-16. AFM METER ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• AUDIO IN: 400Hz/−60dBu • METER SELECT switch : AFM • EE mode	PCM2/AFM/BATT level meter  The pointer should stay at 0.	◐RV205/FP-37(B-1)

9-17. BATTERY METER ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• METER SELECT switch: BATT (SIDE PANEL) • Connect TP2 on the SY-153 board (D-2) and GND with a shorting clip. • POWER switch: ON • Insert a P6-60MP cassette tape. • REC mode • After adjustment, remove a shorting clip.	WARNING lamp WARNING lamp blinks → lights up	◐ Variable voltage power supply
	PCM2/AFM/BATT level meter  Adjust the RV207 so that the pointer stays on the left side of the green belt. (within a pointer width)	◐RV207/FP-37(D-4)

9-18. ALARM TONE OUT LEVEL CHECK

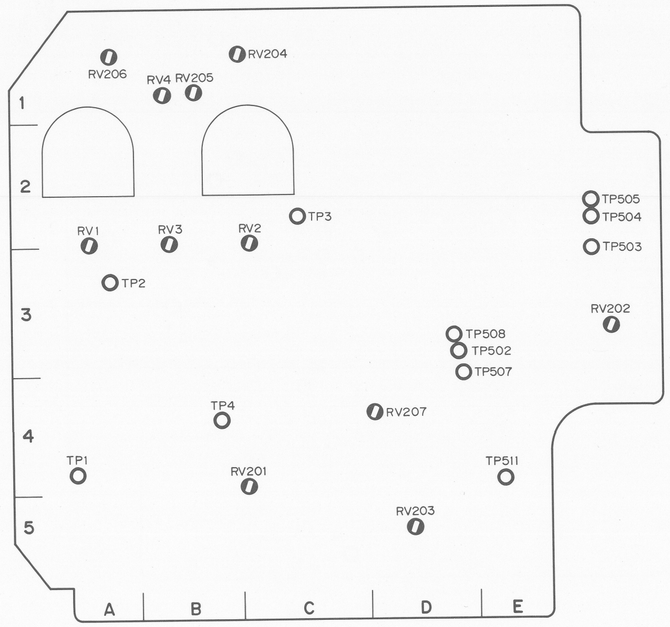
Machine conditions for adjustment	Specifications	Adjustments
• Connect TP6/SY-153(D-2) and GND with a shorting clip. • Turn the ALARM VR fully clockwise direction. • After adjustment, remove a shorting clip.	EARPHONE jack/EVV-9000 (terminated with 8Ω) −32±3dBu	

9-19. EARPHONE OUT LEVEL CHECK

Machine conditions for adjustment	Specifications	Adjustments
• Play back the Audio 400Hz portion of the alignment tape WR5-8NSE. • Turn the MONITOR VR fully clockwise direction.	EARPHONE jack/EVV-9000 (terminated with 8Ω) −18.0±3dBu	

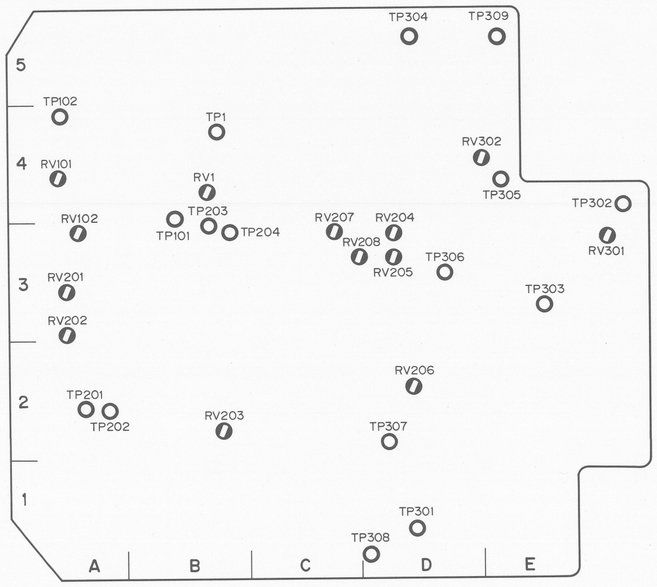
Locations of RVs and TPs on the FP-37 Board

• B side (Soldering Side).



Locations of RVs and TPs on the AU-136 Board

• A side (Component Side).



9-12. ALARM TONE OUT LEVEL CHECK

Measuring conditions for adjustment	Specifications	Adjustments
• Connect TPG/SY-1330(D-2) and GND with a shorting clip. • Turn the ALARM VR fully clockwise. • After adjustment, remove a shorting clip.	EARPHONE jack/EVV-9000 (terminated with 8Ω) −32±3dBu	

9-13. EARPHONE OUT LEVEL CHECK

Measuring conditions for adjustment	Specifications	Adjustments
• Play back the Audio 400Hz portion of the alignment tape WRS-9NSE. • Turn the MONITOR VR fully clockwise direction.	EARPHONE jack/EVV-9000 (terminated with 8Ω) −18.0±3dBu	

Locations of RVs and TPs on the FP-37 Board
• B side (Soldering Side).

Locations of RVs and TPs on the AU-136 Board
• A side (Component Side).

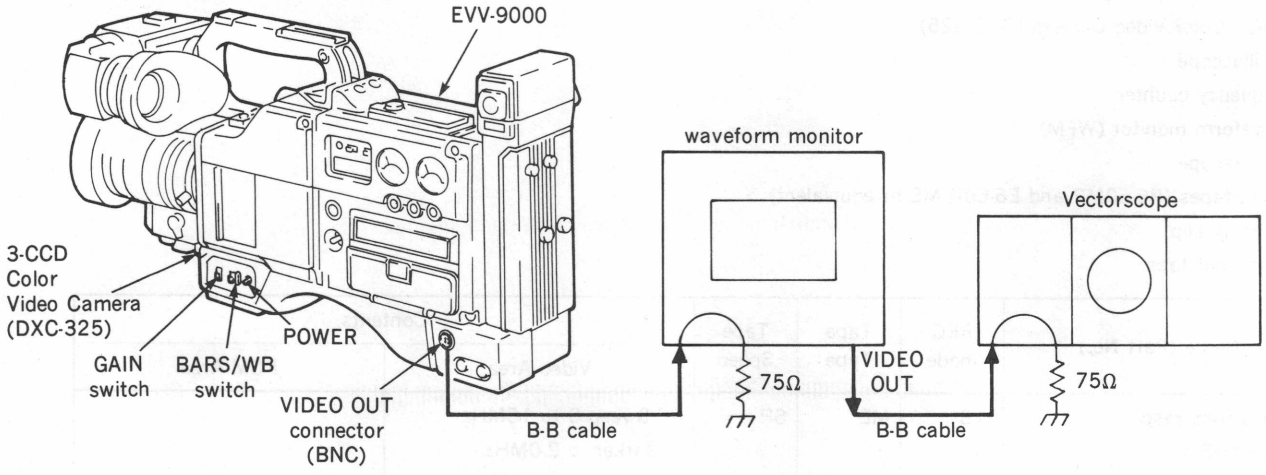
SECTION 10
VIDEO SYSTEM ALIGNMENT

[Equipment Required]

- 3-CCD Color Video Camera (DXC-325)
- Oscilloscope
- Frequency counter
- Waveform monitor (WFM)
- Vectorscope
- Blank tapes (P6-60MP and E6-60HIME or equivalent)
- Shorting clip
- Alignment tape

Name (Part No.)	REC mode	Tape Type	Tape Speed	Contents	
				Video Area	PCM Area
Video freq. resp. WR5-7NE (8-967-995-13)	Hi8	ME	SP	RF Sweep 0 to 15MHz Marker : 2.0MHz 4.5MHz 7.0MHz 8.5MHz 10.0MHz	
SP operation check WR5-5NSP (8-967-995-42)	STD	MP	SP	VIDEO SIGNAL Color-bar 4min. Monoscope 4min. AUDIO SIGNAL 400Hz 60% mod.	AUDIO SIGNAL (PCM) Monoscope Section 20Hz 20sec. 400Hz 20sec. 14kHz 20sec. Color-bar Section 1kHz 4sec.
SP operation check WR5-8NSE (8-967-995-43)	Hi8	ME	SP		AUDIO SIGNAL (PCM) 400Hz 20min.

10-1. CONNECTION



10-2. INITIAL SETTING AND ADJUSTMENT

• Initial Setting

Set the switches of the camera as follows.

GAIN switch : 0dB

BARS/WB switch : BARS

Note : Do not touch these switches without particular indication.

• Initial Adjustment

Note 1 : Before adjustment, connect the equipments referring to Section 10-1. CONNECTION. Check that it meets the following specifications.

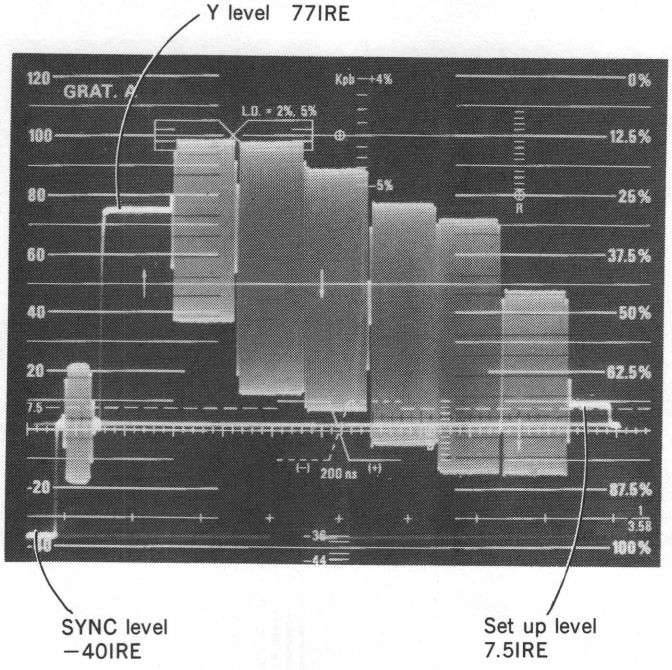
Note 2 : Befor adjustment, turn the POWER ON and warm up the unit about 10minutes.

10-2-1. Color Bar Signal

Equipments : Vectorscope and Waveform monitor

Preparation : Set the BARS WB switch on the side of the camera to BARS.

Specifications :

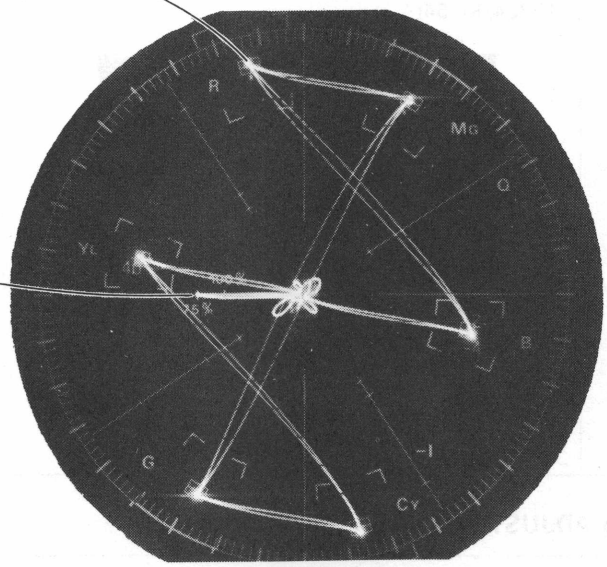


Note : Partial difference between scale and signal level is caused by photographic error.

Chroma Level

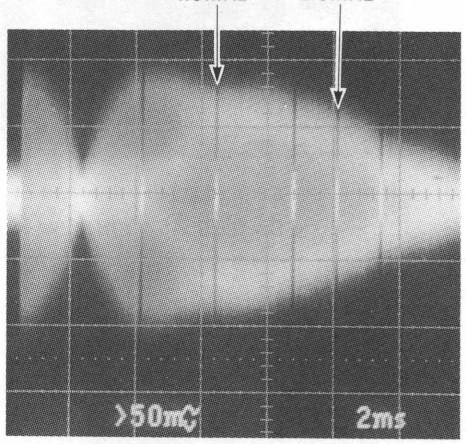
• Adjust the beam spots of each color (R, YL, G, CY, B and MG) to be inside the "⊞" mark.

Burst Spot 75%

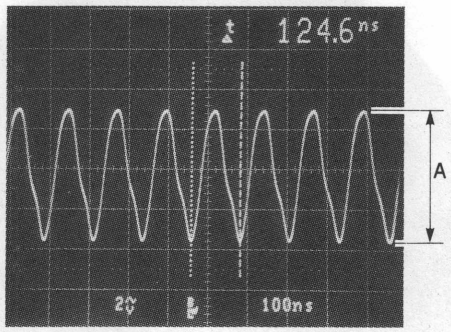


Note : When it does not meet the specifications, perform the ENCODER SYSTEM (PR-111 and ES-1 Boards) ADJUSTMENT referring to Section 3-4 of the Camera (DXC-325).

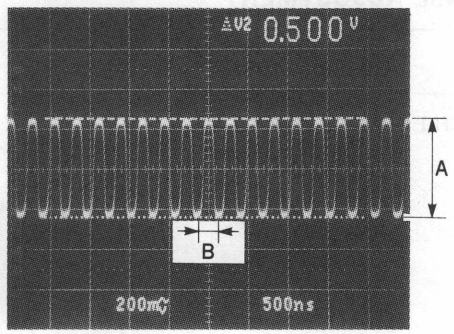
10-3. PB FREQUENCY RESPONSE ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• Play back the alignment tape WR5-7NE.	CH-1 : CN802-3/RP-54(A-2) 4.5MHz 8.5MHz  4.5MHz : 8.5MHz=3 : $2^{+0.1}_{-0}$	◐ RV802/RP-54(B-2) Trigger : CN802-2/RP-54(A-2)
	CH-2 : CN802-4/RP-54(A-2) 4.5MHz : 8.5MHz=3 : $2^{+0.1}_{-0}$	◐ RV803/RP-54(B-2) Trigger : CN802-2/RP-54(A-2)

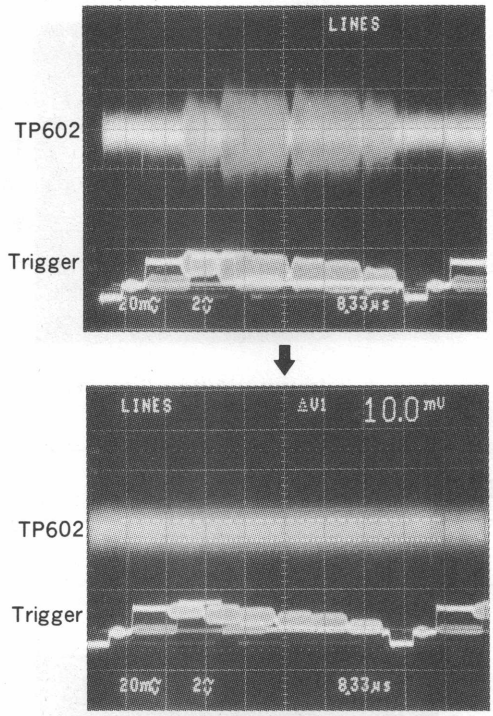
10-4. FLYING ERASE CONFIRMATION

Machine conditions for adjustment	Specifications	Adjustments
• Insert a P6-60MP tape. • REC mode	TP804/RP-54(A-3)  A≧6.0V t=8.0±0.5MHz	

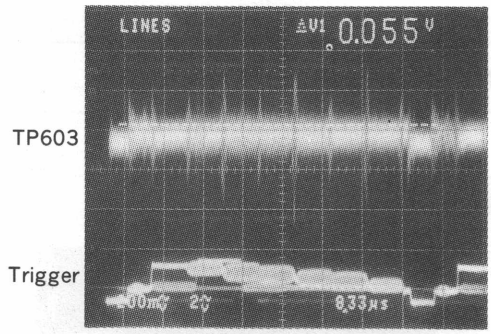
10-5. X'tal OSCILLATOR fo ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• Play back the color-bar signal portion of the alignment tape WR5-8NSE.	TP601/VO-29(A-4)  A≧0.5±0.1V B=3579545±30Hz	◐ CV601/VO-29(B-3)

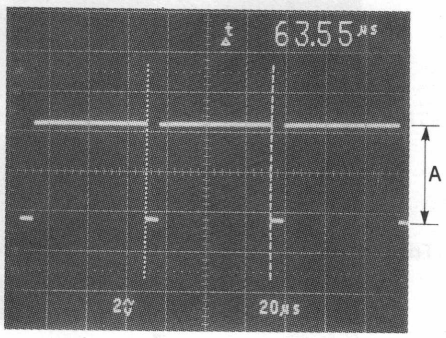
10-6. PB C COMB FILTER ADJUSTMENT (1)

Machine conditions for adjustment	Specifications	Adjustments
• Play back the color-bar signal portion of the alignment tape WR5-8NSE.	TP602/VO-29(E-2)  Minimize residual chroma component (15mV or less)	◐ RV002/HD-8 Trigger: VIDEO OUT connector /EVV-9000

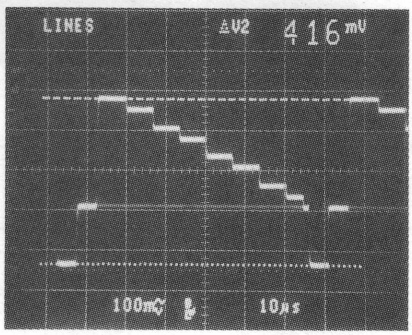
10-7. Y COMB FILTER ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• Insert a E6-60HIME tape. • EE mode	TP603/VO-29(D-3)  minimum (0±200mV)	◐ RV001/HD-8 Trigger: VIDEO OUT connector /EVV-9000

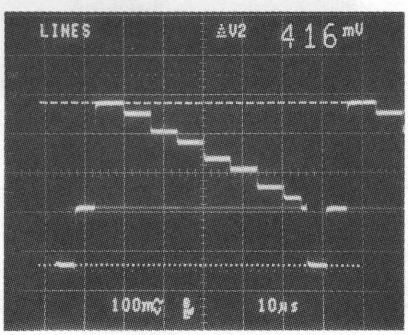
10-8. CHARACTER GENERATOR fo ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• Insert a E6-60HIME tape. • EE mode	IC407-20/VO-28(B-3)  A (reference value)=5.0±0.5V t=15734±100Hz	◐ CV401/VO-28(A-4)

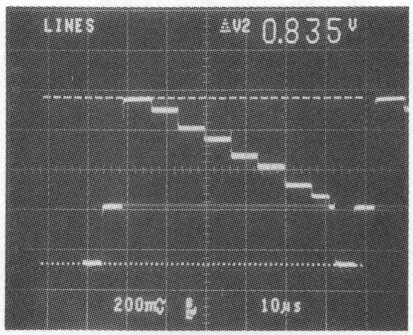
10-9. SYNC AGC ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• Insert a E6-60HIME tape. • EE mode	TP401/VO-28(C-1)  0.416±0.02V	◐ RV409/VO-28(E-1)

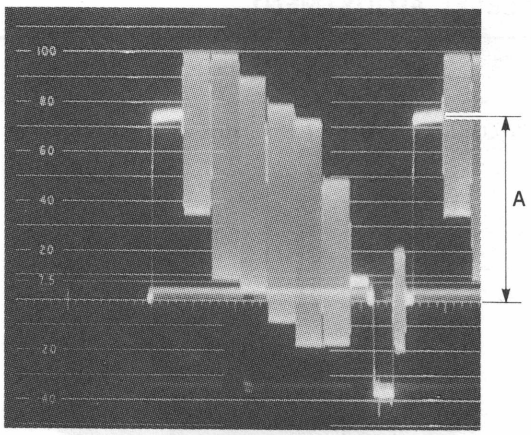
10-10. LOOP GAIN ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• Insert a E6-60HIME tape. • EE mode	TP607/VO-29(E-2)  0.416±0.02V	◐ RV401/VO-28(A-1)

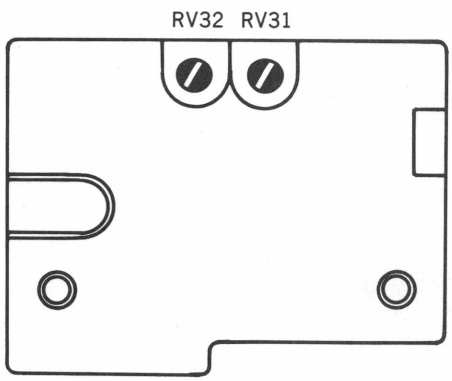
10-11. VIDEO OUT LEVEL ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• Insert a E6-60HIME tape. • EE mode	TP407/VO-28(A-4)  0.835±0.04V	◐ RV410/VO-28(E-1)

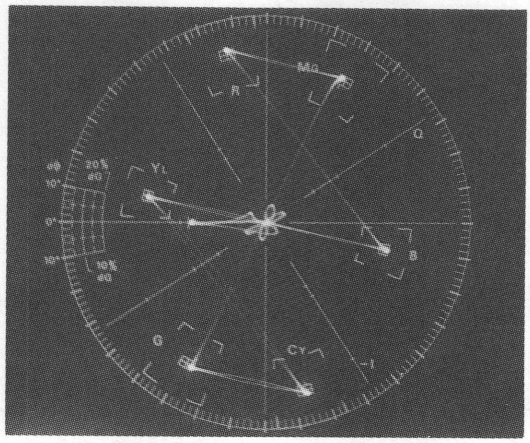
10-12. EE MODE VIDEO OUT Y LEVEL ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• Insert a E6-60HIME tape. • EE mode	VIDEO OUT connector (terminated with 75Ω)  A=77IRE	◐ RV32/VA-102

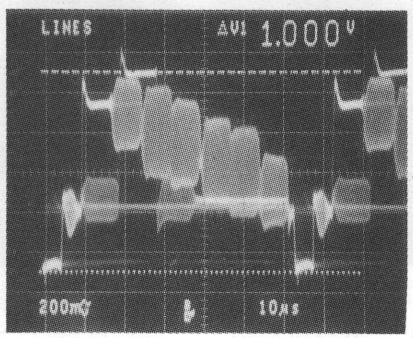
Bottom View of the Connector Box (VA-102 Board)



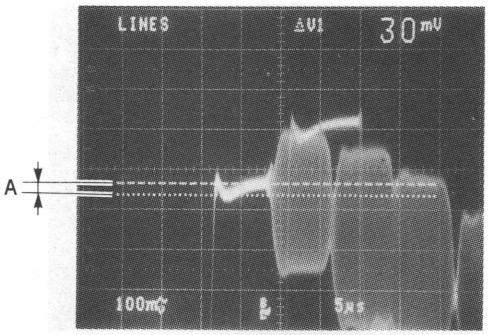
10-13. EE MODE VIDEO OUT CHROMA LEVEL ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• Insert a E6-60HIME tape. • EE mode	VIDEO OUT connector (terminated with 75Ω)  Spec. 1 : Adjust PHASE so that the burst beam spot should be the 75% spot on the B-Y axis. Spec. 2 : Adjust RV31 so that the yellow (Y_L) beam spot should be in the mark "⊞" on the vectorscope.	Spec. 1 ◐PHASE knob /vectorscope Spec. 2 ◐RV31/VA-102

10-14. LOW BAND MODE PB Y LEVEL ADJUSTMENT

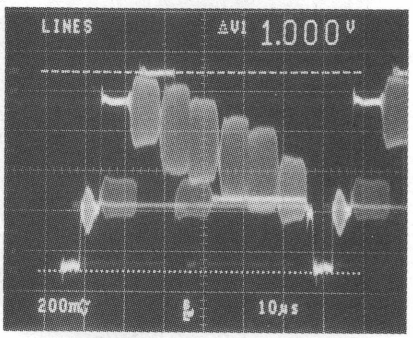
Machine conditions for adjustment	Specifications	Adjustments
• Play back the color-bar signal portion of the alignment tape WR5-5NSP.	VIDEO OUT connector (terminated with 75Ω)  1.00±0.025V	◐RV416/VO-28(E-2)

10-15. PB EMPHASIS ADJUSTMENT

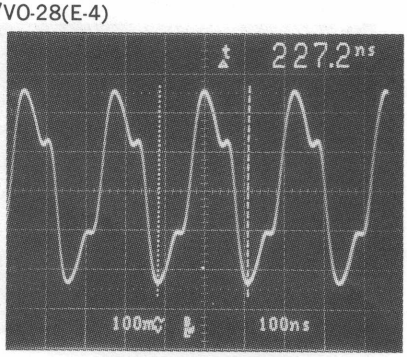
Machine conditions for adjustment	Specifications	Adjustments
• Play back the color-bar signal portion of the alignment tape WR5-5NSP.	VIDEO OUT connector (terminated with 75Ω)  A≦20mV (Read it at the center of waveform.)	◐ RV408/VO-28(D-1)

10-16. Hi8 MODE PB Y LEVEL ADJUSTMENT

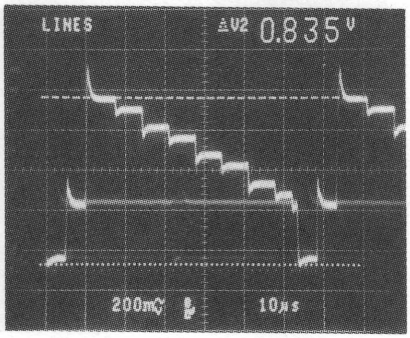
Note : This adjustment should be performed after completion of Section 10-14. LOW BAND MODE PB Y LEVEL ADJUSTMENT.

Machine conditions for adjustment	Specifications	Adjustments
• Play back the color-bar signal portion of the alignment tape WR5-5NSP.	VIDEO OUT connector (terminated with 75Ω)  1.00±0.025V	◐ RV417/VO-28(E-2)

10-17. LOW BAND MODE Y FM CARRIER ADJUSTMENT

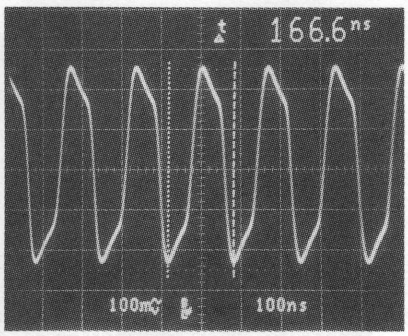
Machine conditions for adjustment	Specifications	Adjustments
• Turn the POWER OFF the 3-CCD Color Video Camera (DXC-325). • Insert a P6-60MP tape. • EE mode • After adjustment, turn the POWER ON of the Camera.	TP404/VO-28(E-4)  4.40±0.02MHz	◐ RV406/VO-28(C-1)

10-18. LOW BAND MODE Y FM DEVIATION ADJUSTMENT

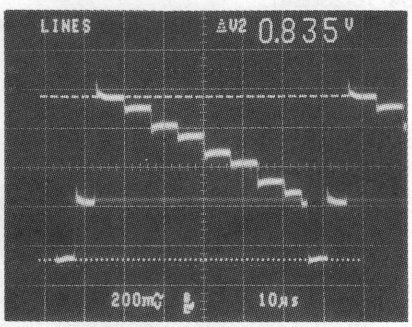
Machine conditions for adjustment	Specifications	Adjustments
• Perform the self-recording/play back with a P6-60MP tape.	TP407/VO-28(A-4)  0.835±0.025V	◐ RV405/VO-28(C-1)

Note : After adjustment, perform Section 10-17. LOW BAND MODE Y FM CARRIER ADJUSTMENT.

10-19. Hi8 MODE Y FM CARRIER ADJUSTMENT

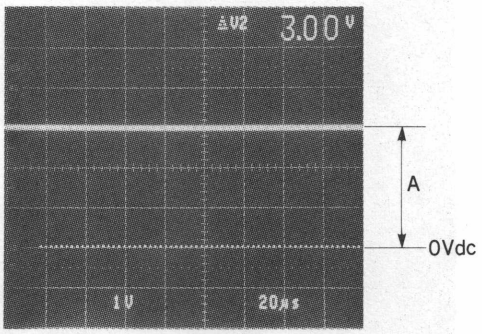
Machine conditions for adjustment	Specifications	Adjustments
• Turn the POWER OFF of the 3-CCD Color Video Camera (DXC-325). • Insert a E6-60HIME tape. • EE mode • After adjustment, turn the POWER ON of the Camera.	TP404/VO-28(E-4)  6.00±0.02MHz	◐ RV407/VO-28(C-2)

10-20. Hi8 MODE Y FM DEVIATION ADJUSTMENT

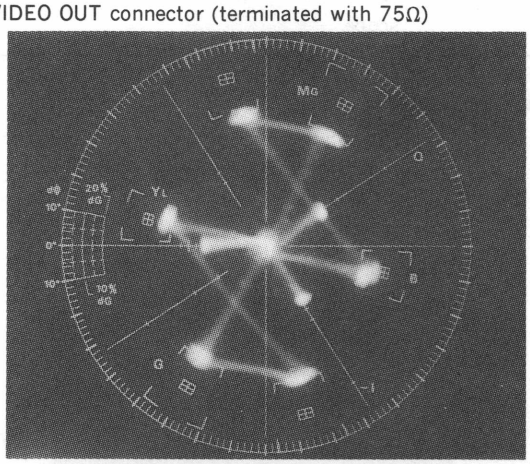
Machine conditions for adjustment	Specifications	Adjustments
• Perform the self-recording/play back with a P6-60MP tape.	TP407/VO-28(A-4)  0.835±0.025V	◐ RV404/VO-28(C-1)

Note : After adjustment, perform Section 10-19. HI8 MODE Y FM CARRIER ADJUSTMENT

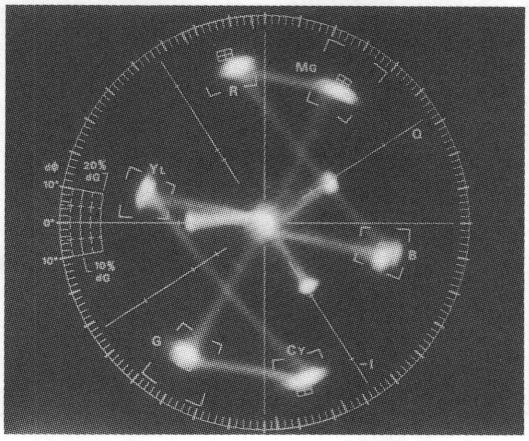
10-21. 378f_H VCO ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• Insert a E6-60HIME tape. • EE mode	TP604/VO-29(B-4)  A=3.0±0.1Vdc	◐ RV602/VO-29(B-3)

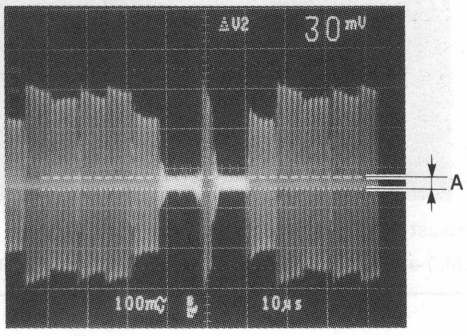
10-22. CHROMA EMPHASIS ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• Play back the color-bar signal portion of the alignment tape WR5-5NSP.	VIDEO OUT connector (terminated with 75Ω)  Adjust FL603 so that the beam spot between magenta (M_G) and green (G) is through the center of vectorscope.	◐ FL603/VO-29(A-2)

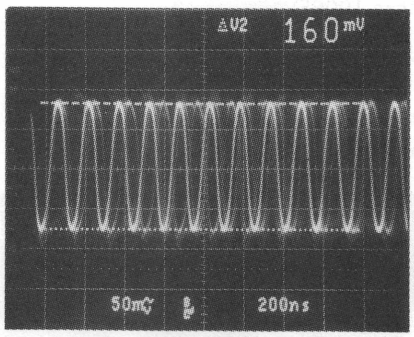
10-23. PB C COMB FILTER ADJUSTMENT (2)

Machine conditions for adjustment	Specifications	Adjustments
• Play back the color-bar signal portion of the alignment tape WR5-5NSP. • Turn the GAIN knob of the vectorscope to the UNCAL, and then the yellow (Y_L) beam spot to be in the "⊞" mark.	VIDEO OUT connector (terminated with 75Ω)  Spec. 1 : Adjust PHASE knob so that the burst beam spot should be the 75% spot on the B-Y axis. Spec. 2 : Adjust LV601 so that the yellow (Y_L) beam spot to be in the "⊞" mark on the vectorscope.	Spec. 1 ◐ PHASE knob /vectorscope Spec. 2 ◐ LV601/VO-29(C-1)

10-24. CARRIER BALANCE ADJUSTMENT

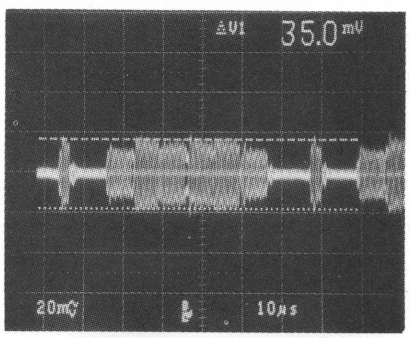
Machine conditions for adjustment	Specifications	Adjustments
• Insert a E6-60HIME tape. • EE mode	TP605/VO-29(B-2)  A (4.32MHz component)=minimum	◐ RV601/VO-29(B-2)

10-25. REC Y REC CURRENT ADJUSTMENT

Machine conditions for adjustment	Specifications	Adjustments
• Setting of the DXC-325 BARS/WB switch: AUTO • Connect between these points on the AU-136 Board with shorting clips. TP1(B-4)↔ TP309/(D-5) TP102(A-4)↔ TP309(D-5) • Insert a E6-60HIME tape. • REC mode • After adjustment, remove the shorting clips. • Setting of the DXC-325 after adjustment. BARS/WB switch: BARS	TP802/RP-54 (A-3)  160±10mV (Read it at the center of noise.)	◐RV806/RP-54 (D-2)

Note : After adjustment, perform the Section 10-26. REC C REC CURRENT ADJUSTMENT, Section 10-27. REC AFM REC CURRENT ADJUSTMENT and Section 10-28. REC ATF REC CURRENT ADJUSTMENT.

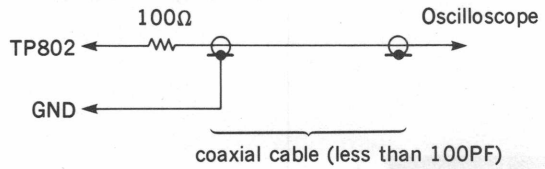
10-26. REC C REC CURRENT ADJUSTMENT

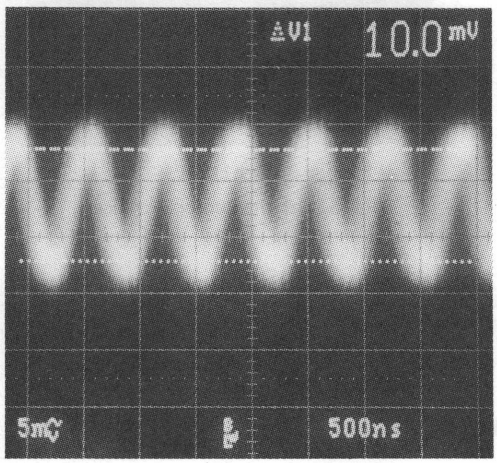
Machine conditions for adjustment	Specifications	Adjustments
• Connect between these points with shorting clips. AU-136 Board TP1(B-4)↔ TP309/(D-5) TP102(A-4)↔ TP309(D-5) RP-54 Board TP805(D-3)↔ CN804-8(D-3) • Insert a E6-60HIME tape. • REC mode • After adjustment, remove the shorting clips.	TP802/RP-54(A-3)  35±3mV	◐RV805/RP-54(D-2)

Note : After adjustment, perform the Section 10-27. REC AFM REC CURRENT ADJUSTMENT and Section 10-28. REC ATF REC CURRENT ADJUSTMENT.

10-27. REC AFM REC CURRENT ADJUSTMENT

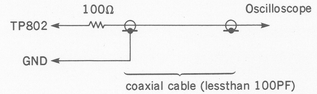
Note : Do not use the probe of 10 : 1 in this adjustment because the signal level of TP802 is low. Connect directly oscilloscope through 100 ohms resistor as shown in the figure.

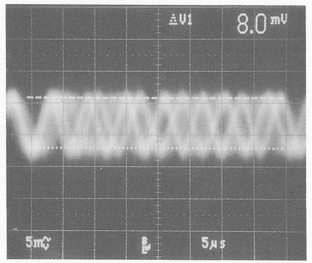


Machine conditions for adjustment	Specifications	Adjustments
• Setting of the DXC-325 BARS/WB switch: AUTO • Disconnect CN805(A-1) on the RP-54 Board. • Connect these points with shorting clips. AU-136 Board TP1(B-4)↔ TP309(D-5) RP-54 Board TP805(D-3)↔ CN804-8(D-3) • Insert a E6-60HIME tape. • REC mode • After adjustment, remove the shorting clips and connect CN805(A-1) on the RP-54 Board. • Setting of the DXC-325 after adjustment. BARS/WB switch: BARS	TP802/RP-54(A-3)  10.0±1.5mV (Read it at the center of waveform)	◐ RV102/AU-136(A-3)

10-28. REC ATF REC CURRENT ADJUSTMENT

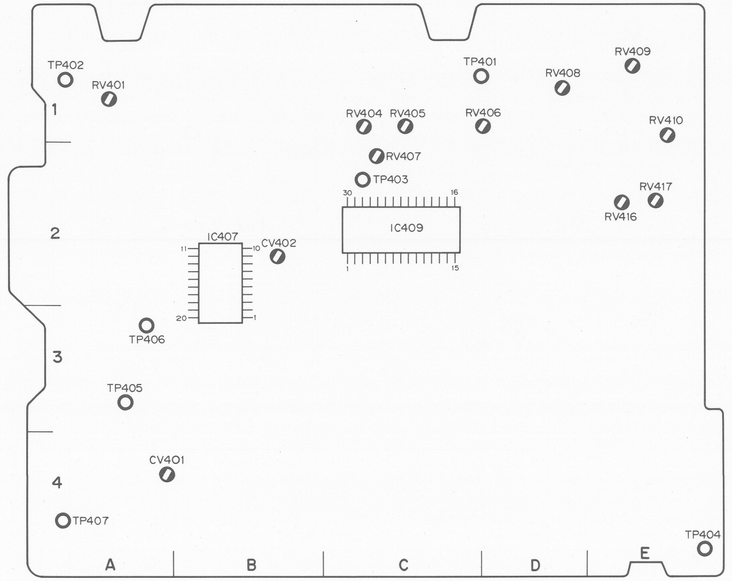
Note : Do not use the prove of 10 : 1 in this adjustment because the signal level of TP802 is low. Connect directly oscilloscope through 100 ohms resistor as shown in the figure.



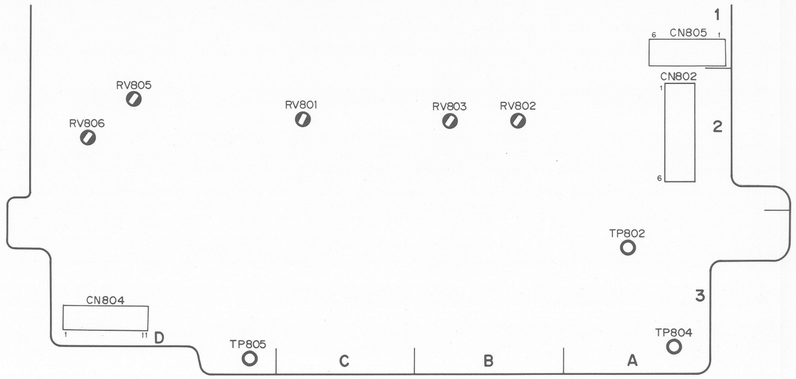
Machine conditions for adjustment	Specifications	Adjustments
• Setting of the DXC-325 BARS/WB switch : AUTO • Disconnect CN805(A-1) on the RP-54 Board. • Connect these points with shorting clips. AU-136 Board TP102(A-4)↔ TP309(D-5) RP-54 Board TP805(D-3)↔ CN804-8(D-3) • Insert a E6-60HIME tape. • REC mode • After adjustment, remove the shorting clips and connect CN805(A-1) on the RP-54 Board. • Setting of the DXC-325 after adjustment. BARS/WB switch : BARS	TP802/RP-54(A-3)  8.0±1.5mV (Read it at the center of waveform)	◐ RV1/AU-136(B-4)

Locations of CVs, RVs and TPs on the VO-28 Board

• A side (soldering side)



Locations of CN, RVs and TPs on the RP-54 Board



Locations of CV, FL, LV, RVs and TPs on the VO-29 Board

• A side (component side)

10-28. REC ATF REC CURRENT ADJUSTMENT

Note : Do not use the probe of 10 : 1 in this adjustment because the signal level of TP802 is low. Connect directly oscilloscope through 100 ohms resistor as shown in the figure.

Meeting conditions for adjustment	Specifications	Adjustments
• Setting of the DXC-325 BARS/WB switch: AUTO • Disconnect CN805(A-1) on the RP-54 Board. • Connect three points with shorting clips AU-136 Board TP102(A-4)— TP539(D-5) RP-54 Board TP805(C-3)— CN804-8(D-3) • Insert a EE-60NHME tape • REC mode • After adjustment, remove the shorting clips and connect CN805(A-1) on the RP-54 Board. • Setting of the DXC-325 after adjustment BARS/WB switch: BARS	TP802/RP-54(A-3) 8.0±1.5mV (Read it at the centre of waveform)	❶ RV1 /AU-136(B-4)

Locations of CN, RVs and TPs on the RP-54 Board

Locations of CV, RVs and TPs on the VO-28 Board

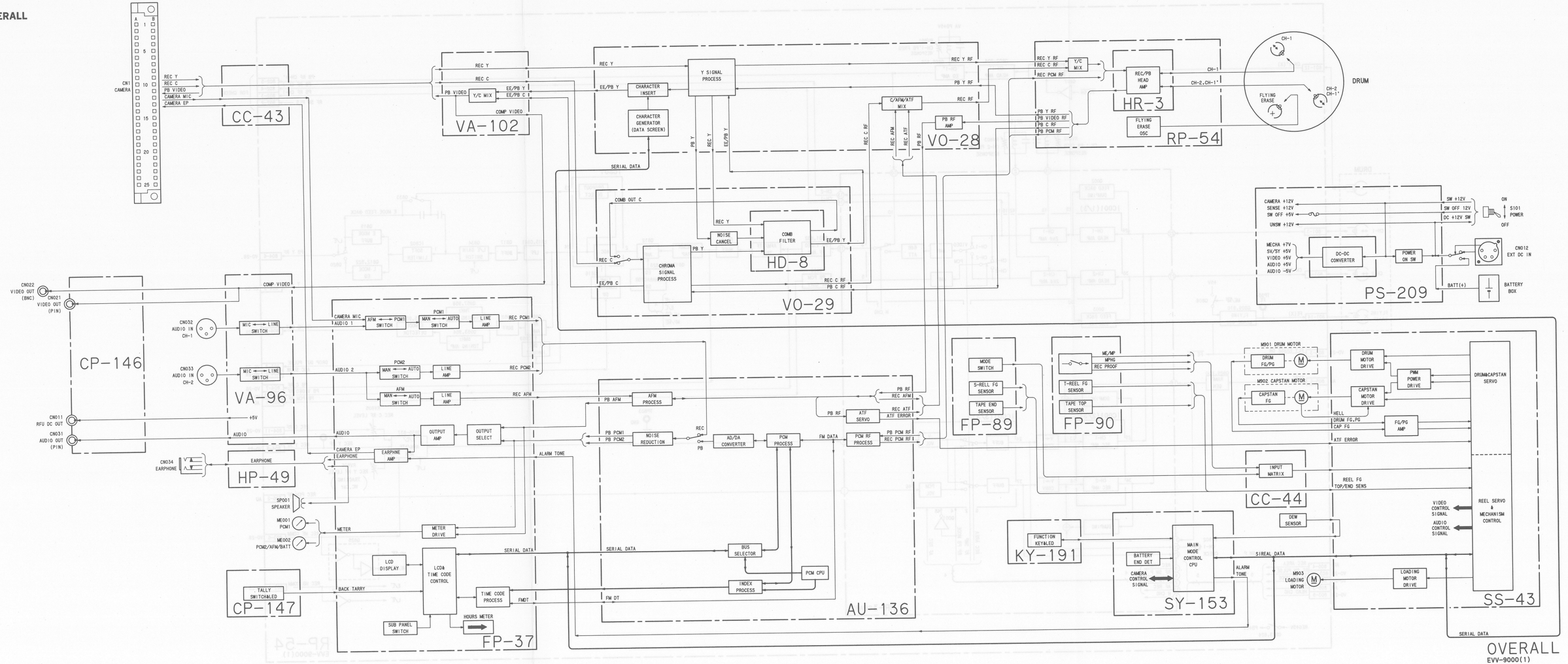
• A side (soldering side)

Locations of CV, FL, LV, RVs and TPs on the VO-29 Board

• A side (component side)

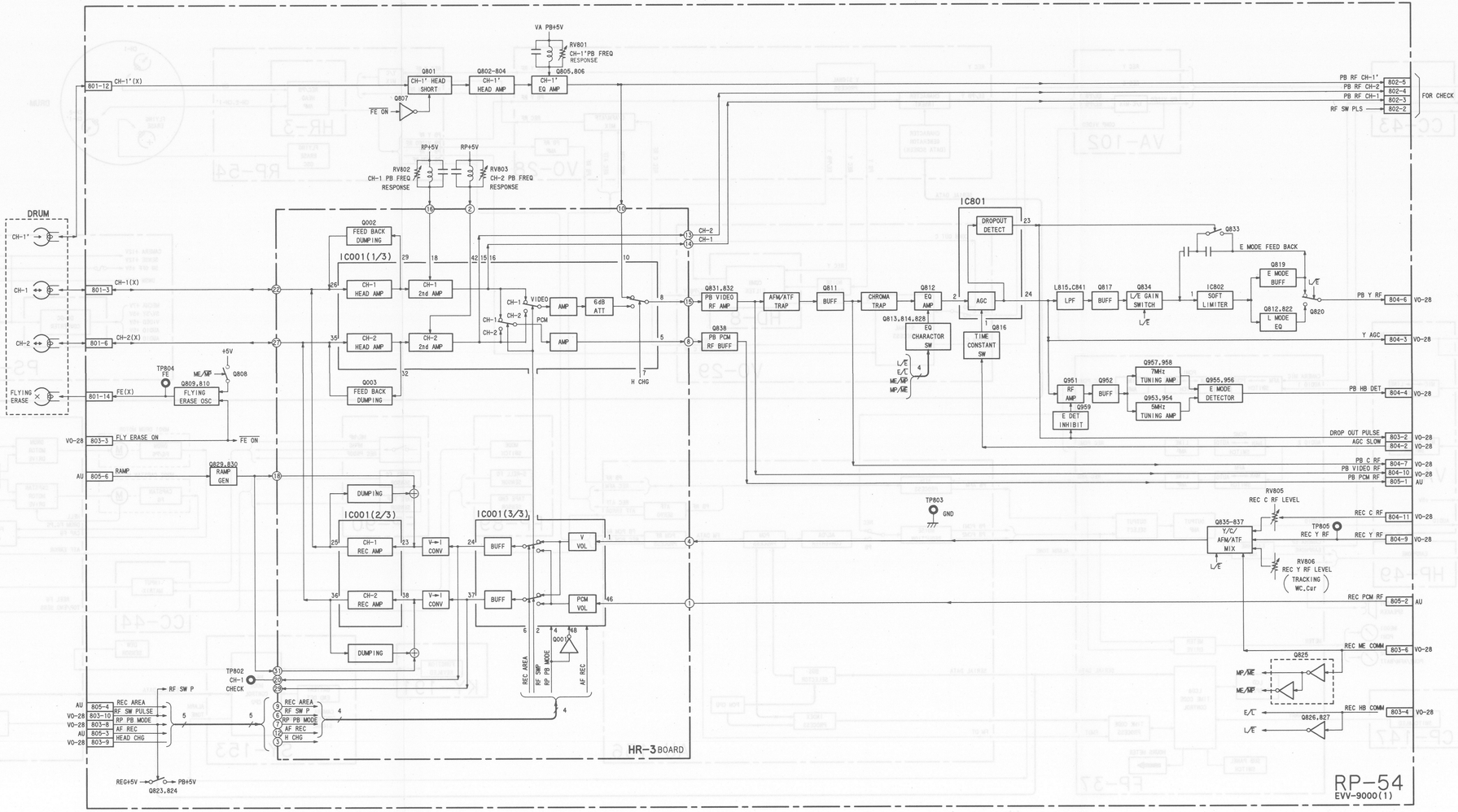
SECTION 11
BLOCK DIAGRAM

OVERALL



REC/PB HEAD AMP

REC/PB HEAD AMP REC/PB HEAD AMP



11-2

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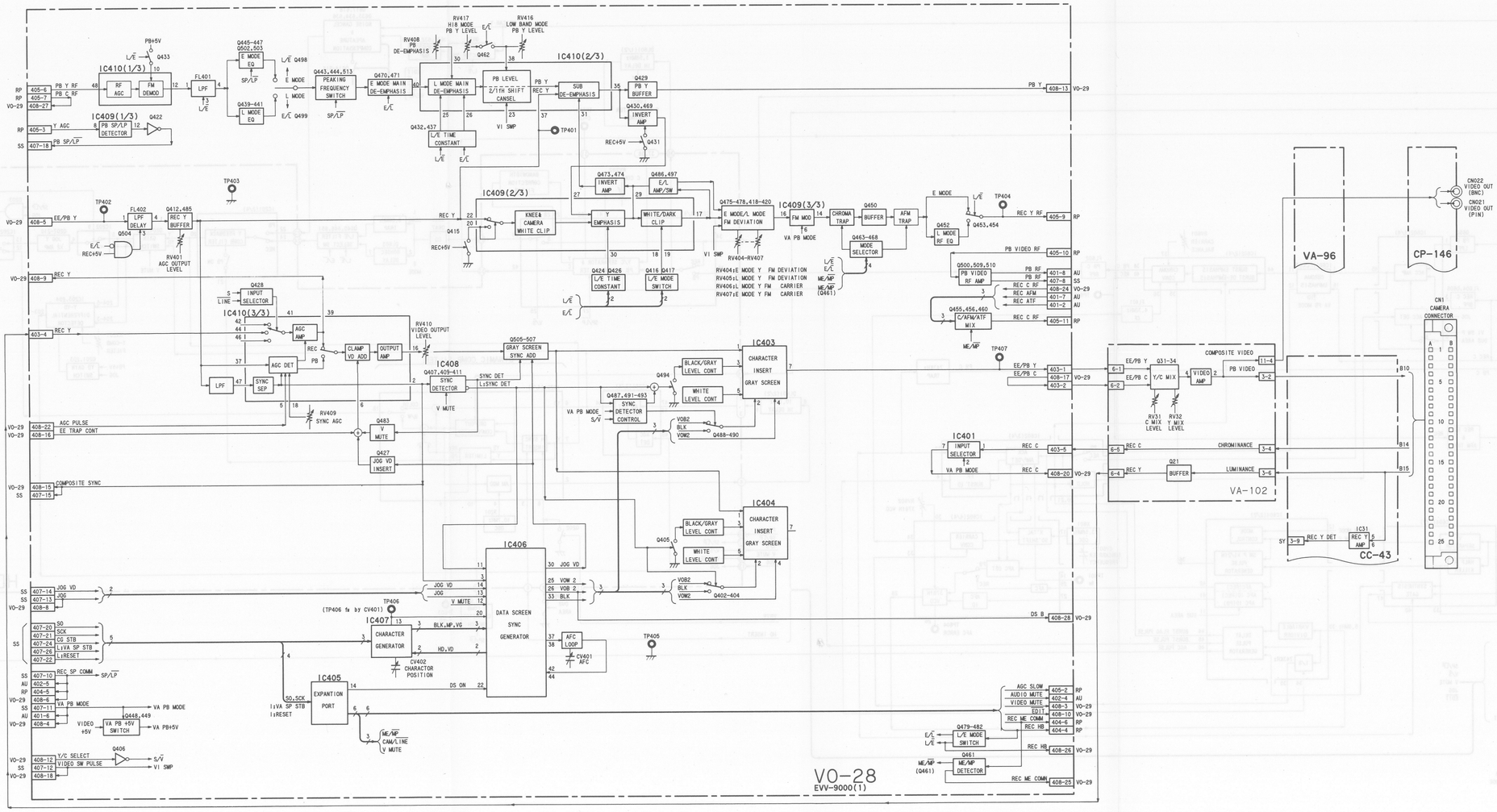
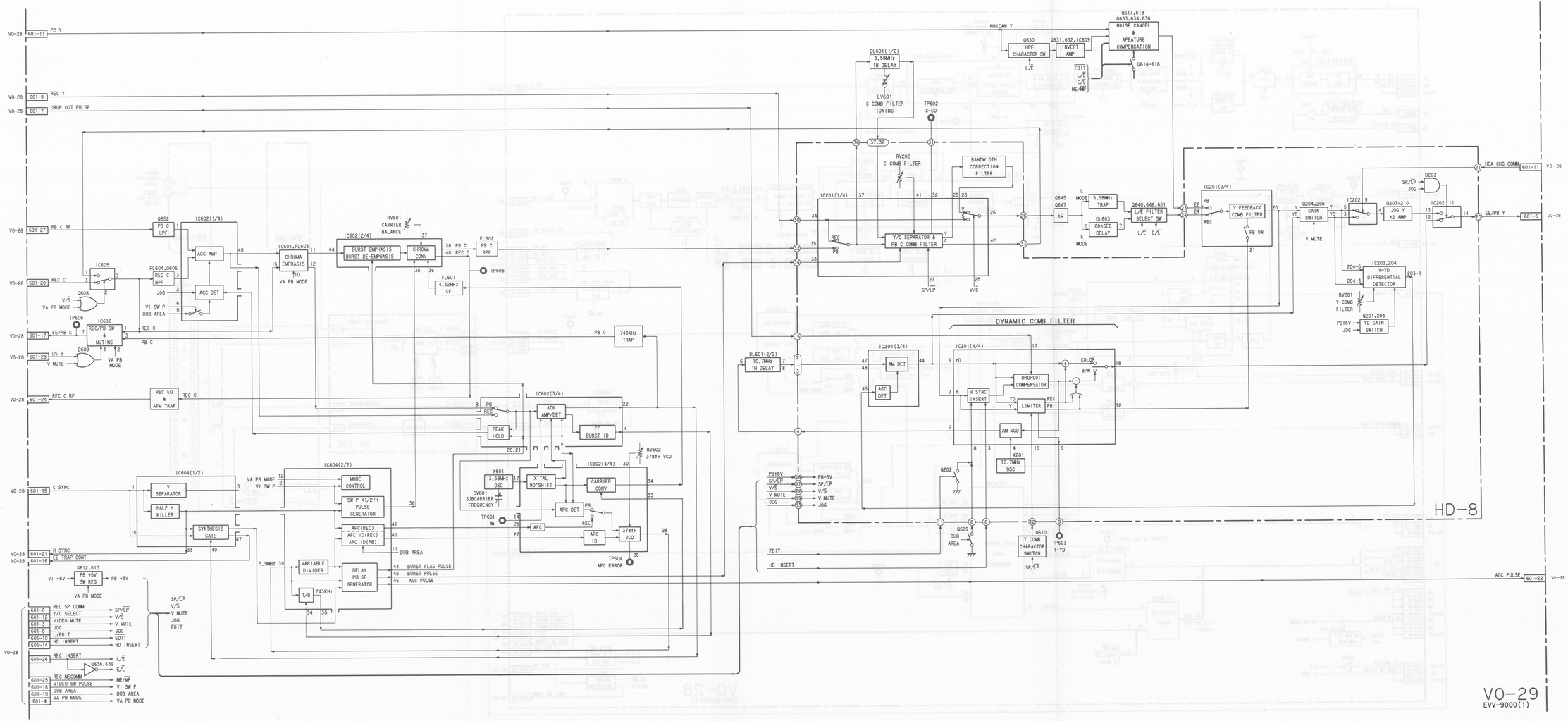
Y PROCESS Y PROCESS



CHROMA PROCESS/COMB FILTER

CHROMA PROCESS/COMB FILTER CHROMA PROCESS/COMB FILTER



11-4

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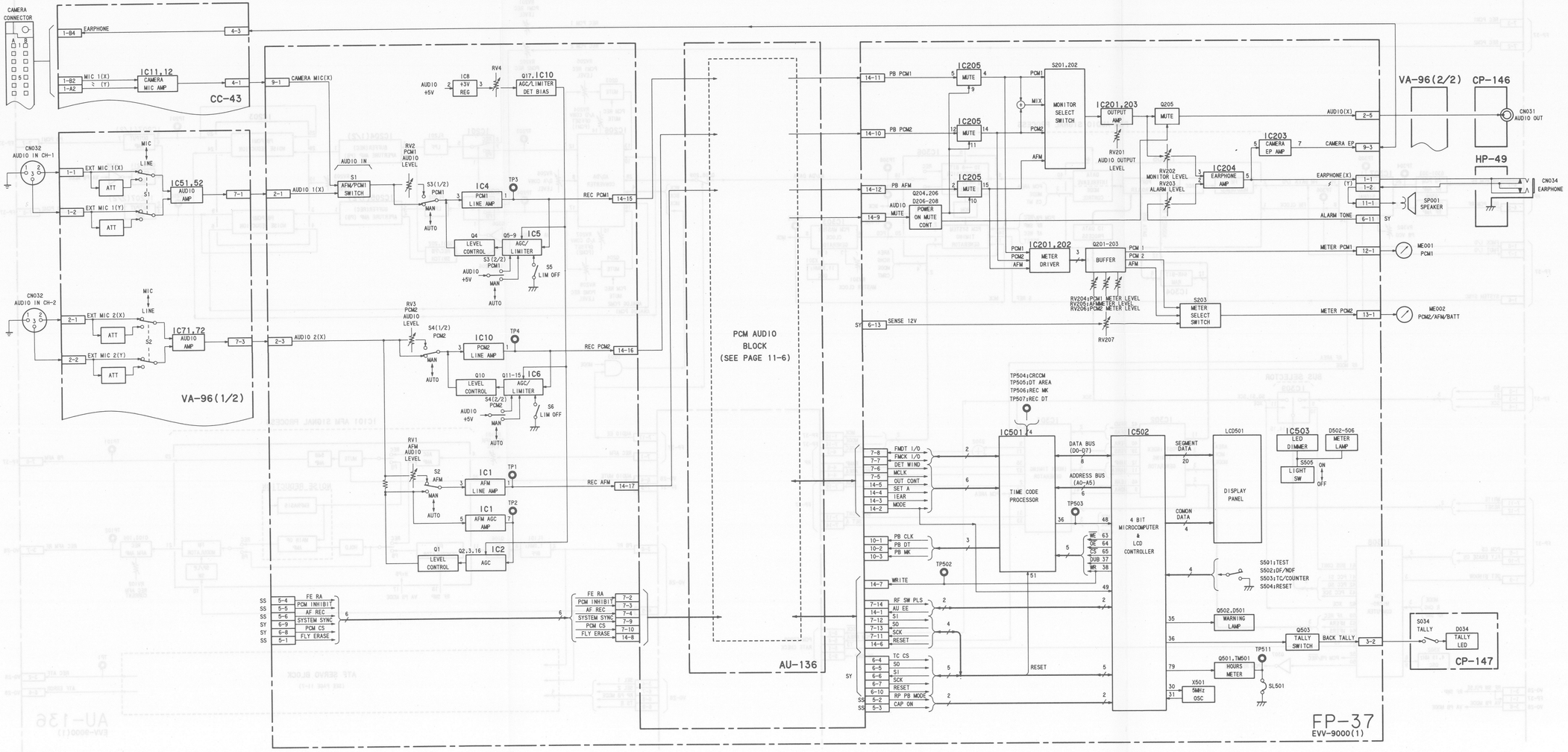
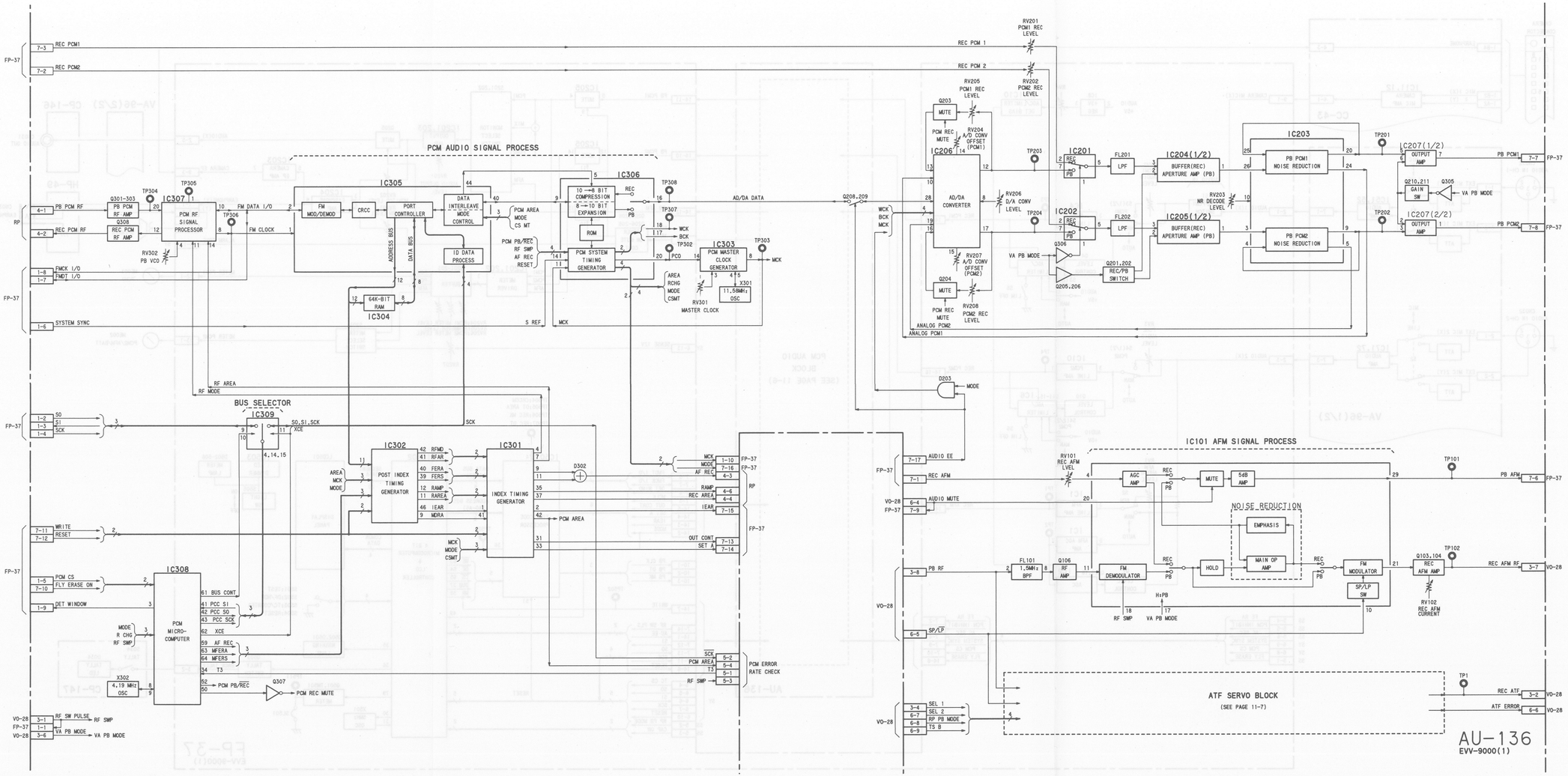

CAMERA CONNECTOR
EARPHONE
MIC 1(X)
IC11,12 CAMERA MIC AMP
CC-43
CAMERA MIC(X)
AUDIO +5V
IC8 +5V REG
RV4
Q17,IC10 AGC/LIMITER DET BIAS
CN032 AUDIO IN CH-1
EXT MIC 1(X)
EXT MIC 1(Y)
ATT
MIC
LINE
IC51,52 AUDIO AMP
AUDIO IN
AUDIO 1(X)
RV2 PCM1 AUDIO LEVEL
AFM/PCM1 SWITCH
S3(1/2) PCM1
IC4 PCM1 LINE AMP
TP3
REC PCM1
MAN
AUTO
Q4 LEVEL CONTROL
Q5-9 IC5 AGC/ LIMITER
S3(2/2) PCM1
S5 LIM OFF
CN032 AUDIO IN CH-2
EXT MIC 2(X)
EXT MIC 2(Y)
IC71,72 AUDIO AMP
AUDIO 2(X)
RV3 PCM2 AUDIO LEVEL
S4(1/2) PCM2
IC10 PCM2 LINE AMP
TP4
REC PCM2
Q10 LEVEL CONTROL
Q11-15 IC6 AGC/ LIMITER
S4(2/2) PCM2
S6 LIM OFF
VA-96(1/2)
RV1 AFM AUDIO LEVEL
S2 AFM
IC1 AFM LINE AMP
TP1
REC AFM
IC1 AFM AGC AMP
TP2
Q1 LEVEL CONTROL
Q2,3,16 IC2 AGC
FE RA
PCM INHIBIT
AF REC
SYSTEM SYNC
PCM CS
FLY ERASE
PCM AUDIO BLOCK (SEE PAGE 11-6)
AU-136
PB PCM1
PB PCM2
PB AFM
AUDIO MUTE
POWER ON MUTE CONT
Q204,206 D206-208
IC205 MUTE
MIX
MONITOR SELECT SWITCH
S201,202
IC201,203 OUTPUT AMP
RV201 AUDIO OUTPUT LEVEL
Q205 MUTE
RV202 MONITOR LEVEL
RV203 ALARM LEVEL
IC204 EARPHONE AMP
IC203 CAMERA EP AMP
AUDIO(X)
CAMERA EP
EARPHONE(X)
ALARM TONE
VA-96(2/2)
CP-146
CN031 AUDIO OUT
HP-49
CN034 EARPHONE
SP001 SPEAKER
IC201,202 METER DRIVER
Q201-203 BUFFER
PCM 1
PCM 2
AFM
METER PCM1
METER PCM2
ME001 PCM1
ME002 PCM2/AFM/BATT
S203 METER SELECT SWITCH
RV204:PCM1 METER LEVEL
RV205:AFM METER LEVEL
RV206:PCM2 METER LEVEL
RV207
SENSE 12V
TP504:CRCCM
TP505:DT AREA
TP506:REC MK
TP507:REC DT
IC501
TIME CODE PROCESSOR
FMDT I/O
FMCK I/O
DET WIND
MCLK
OUT CONT
SET A
IEAR
MODE
PB CLK
PB DT
PB MK
WRITE
RF SW PLS
AU EE
SI
SO
SCK
RESET
TC CS
RP PB MODE
CAP ON
DATA BUS (D0-D7)
ADDRESS BUS (A0-A5)
TP503
TP502
IC502
4 BIT MICROCOMPUTER & LCD CONTROLLER
WE 63
OE 64
CS 65
DUB 37
WR 38
RESET
LCD501
DISPLAY PANEL
SEGMENT DATA
COMON DATA
IC503 LED DIMMER
D502-506 METER LAMP
S505 LIGHT SW
ON
OFF
S501:TEST
S502:DF/NDF
S503:TC/COUNTER
S504:RESET
Q502,D501 WARNING LAMP
Q503 TALLY SWITCH
BACK TALLY
S034 TALLY
D034 TALLY LED
CP-147
Q501,TM501 HOURS METER
TP511
SL501
X501 5MHz OSC
FP-37
EVV-9000(1)

PCM AUDIO PROCESS



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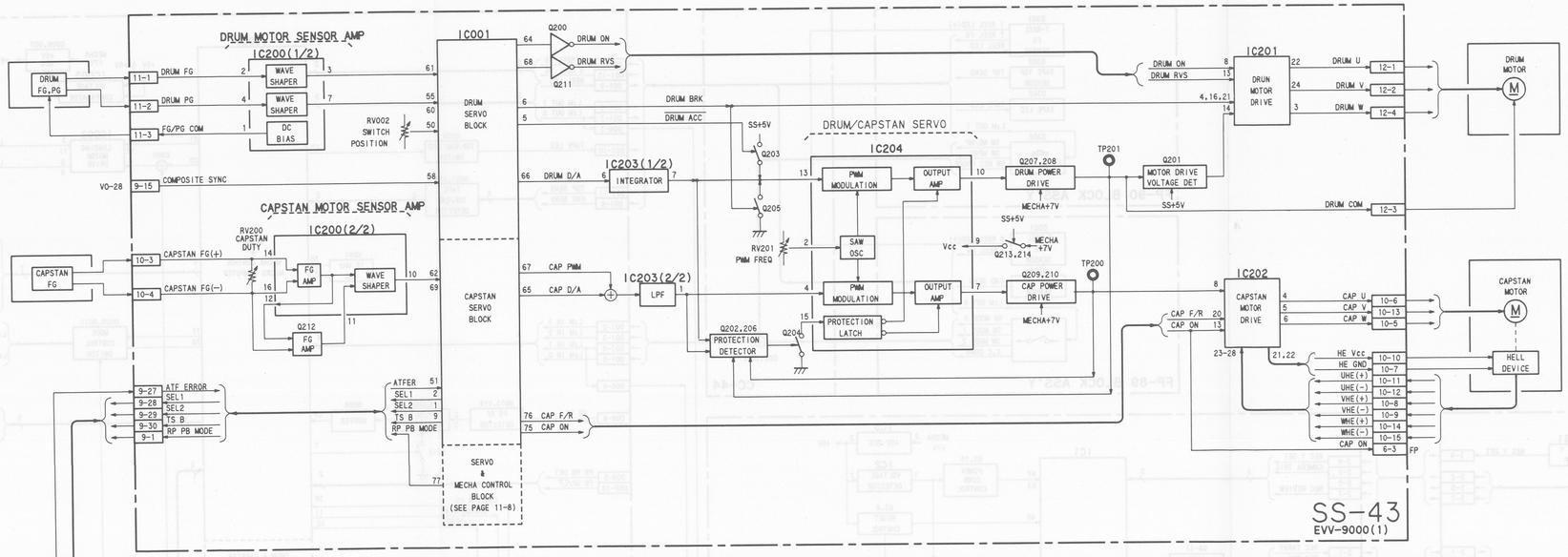
DRUM/CAPSTAN/ATF SERVO

DRUM/CAPSTAN/ATF SERVO



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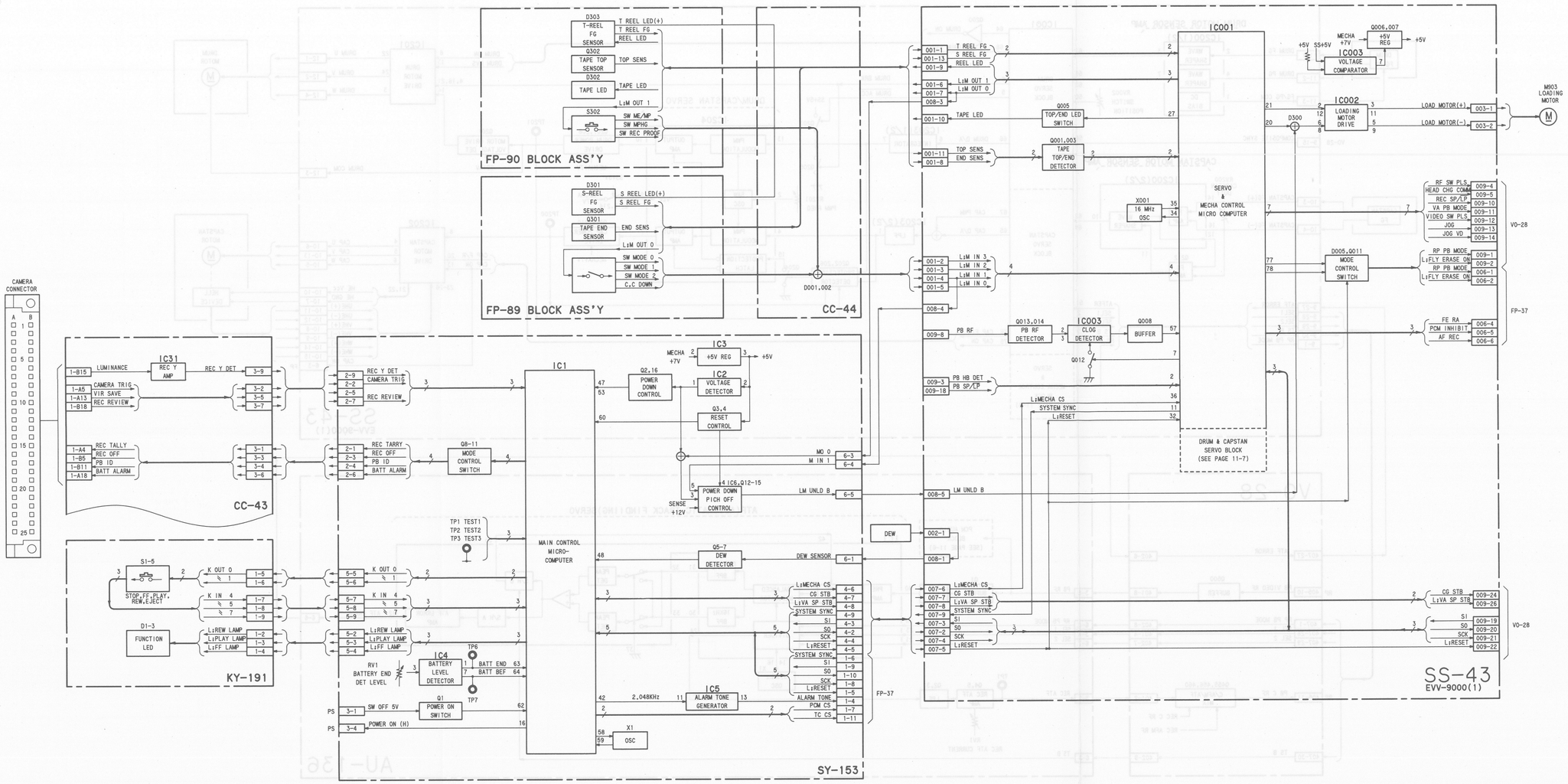
REEL SERVO/MECHANISM CONTROL

REEL SERVO/MECHANISM CONTROL

REEL SERVO/MECHANISM CONTROL



11-8

11-8

SECTION 12
SEMICONDUCTOR PIN ASSIGNMENT

ここに記載されているIC,トランジスタ,ダイオードは,それぞれの機能を等価的に表わしたものです。したがって互換性を表わすものではありません。(互換性のない型名が併記されている事もあります。)部品の交換をする時は,SPARE PARTSの章を参照して下さい。

ICs, transistors and diodes whoses functions are equivalent are described here. Therefore, incompatible device names may be described together. For parts replacement, refer to the Spare Parts section in this manual.

IC	PAGE
BA401	12-3
CX20032	12-3
CX20099	12-4
CX20102	12-4
CX20103	12-4
CX20114	12-5
CX20115A	12-4
CX22021	12-6
CX23011	12-5
CX23012	12-6
CX23054	12-7
CXA1047M	12-7
CXA1127M	12-8
CXA1204Q	12-8
CXA1230AR	12-9
CXA1231AR	12-9
CXA1234AR	12-10
CXD1066Q	12-11
CXD1077M	12-12
CXK5864BM-12L	12-12
CXP5078	12-13
CXP80116-Q	12-14
LB1631M	12-15
LM2903M	12-15
LM358M	12-15
MB3775PF	12-16
MC14013BF	12-16
MC14053BF	12-16
MC14094BF	12-16
NJM2230M	12-17
NJM2233AM	12-17
NJM2234M	12-17
NJM2235M	12-17
NJM386M	12-17
RC4558M	12-17
RC4560M	12-17

IC	PAGE
S-8054ALR-LN	12-18
S-81230AG-RB	12-18
S-81250HG-RD	12-18
SBX1505-01	12-18
TA8607F	12-19
TL082CPS	12-19
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TL431CPS	12-19
UPC358G2	12-19
UPC393G2	12-15
UPC4558G2	12-17
UPC4572G2	12-20
UPD4053BG	12-16
UPD6145G	12-20

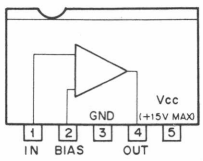
TRANSISTOR	PAGE
2SA1122	12-20
2SA1175	12-20
2SA1226	12-20
2SA1242	12-20
2SA1576	12-20
2SA1611	12-20
2SA812	12-20
2SB1040A	12-20
2SB1121	12-20
2SB1123	12-20
2SB624	12-20
2SC1623	12-20
2SC2223	12-20
2SC2712	12-20
2SC2712Y	12-20
2SC2715	12-20
2SC3326N	12-20
2SC3356	12-20
2SC4081	12-20
2SC4175	12-20
2SC4177	12-20
2SK94	12-20
DTA114EK	12-21
DTA124EU	12-21
DTA143EU	12-21
DTA144EK	12-21
DTA144EU	12-21
DTC114EU	12-21
DTC114YK	12-21
DTC124EU	12-21
DTC124XK	12-21
DTC144EK	12-21
DTC144EU	12-21
FMW1	12-21
FMW2	12-21

等価回路はICメーカーのData Bookに従いました。
The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

DIODE	PAGE
1S2835	12-32
1S2837	12-21
1SS119	12-21
1SS123	12-21
1SS196	12-21
1SS303	12-21
1SS304	12-21
1T32-8	12-21
DAP202	12-21
EBR3402S	12-21
ERA81-004	12-21
ERB81-004	12-21
GL-1HD1	12-21
RD15ESL	12-21
RD2.4MB	12-21
RD8.2ESL	12-21
SB05-05CP	12-21
SLH-34YT3	12-21
TLUR164	12-21

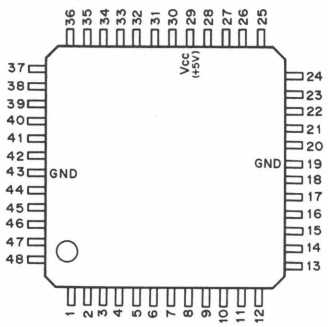
BA401 (ROHM)

RF AMPLIFIER
– SIDE VIEW –



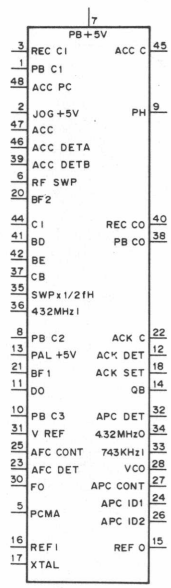
CX20032 (SONY)

CHROMA SIGNAL PROCESSOR FOR VTR
– TOP VIEW –



(VDD = +5V)

PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGANL	PIN NO.	I/O	SYGNAL	PIN NO.	I/O	SYGNAL
1	I	PB C1	13	I	PAL +5V	25	I	AFC CONT	37	I	CB
2	I	JOG +5V	14	O	QB	26	I	APC ID2	38	O	PB CO
3	I	REC CI	15	O	REFO	27	I	APC CONT	39	I	ACC DETB
4	O	BID	16	I	REFI	28	O	VCO	40	O	REC CO
5	–	PCMA	17	I	XTAL	29	–	Vcc	41	I	BD
6	I	RF SWP	18	I	ACK SET	30	I	F0	42	I	BE
7	I	PB +5V	19	–	GND	31	I	VREF	43	–	GND
8	I	PB C2	20	I	BF2	32	O	APC DET	44	I	CI
9	O	PH	21	I	BF1	33	I	743KHzI	45	O	ACC C
10	I	PB C3	22	O	ACK C	34	O	4.32MHzO	46	I	ACC DETA
11	I	D0	23	I	AFC DET	35	I	SWPx1/2fH	47	I	ACC
12	I	ACK DET	24	I	APC ID1	36	I	4.32MHzI	48	I	ACC PC



INPUT

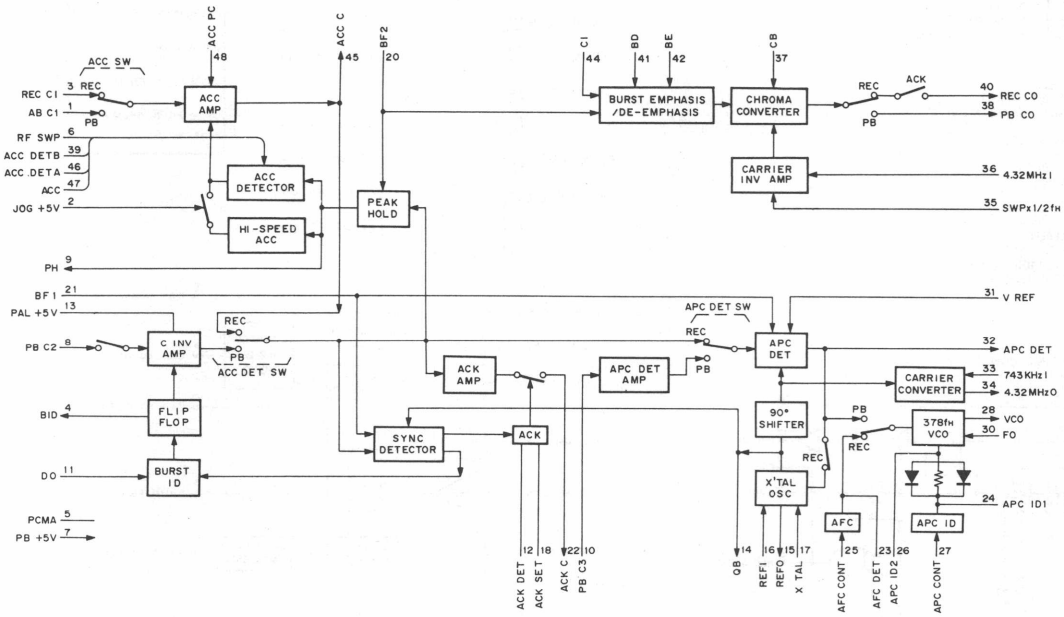
4.32MHz	; 4.32MHz BAND PASS FILTER
743KHz	; VCO OUTPUT FREQUENCY DIVIDED BY 8
ACC	; ACC OUTPUT LEVEL ADJUSTMENT
ACC DET A, B	; ACC DETECTOR TIME CONSTANT
ACC PC	; DE-COUPLING CAPACITOR FOR ACC AMP
ACK DET	; ACK DETECTOR TIME CONSTANT
ACK SET	; ACK LEVEL SET ADJUSTMENT
AFC CON	; AFC ERROR VOLTAGE
AFC DET	; AFC TIME CONSTANT
APC CON	; APC ID ERROR VOLTAGE
APC ID1, 2	; APC ID TIME CONSTANT
BD	; BURST DE-EMPHASIS ADJUSTMENT
B	; BURST EMPHASIS ADJUSTMENT
BF1, 2	; BURST FLAG
CB	; CARRIER BALANCE ADJUSTMENT
CI	; CHROMA
DO	; DROPOUT
FO	; VCO CENTER FREQUENCY ADJUSTMENT
JOG + 5	; PB MODE SWITCH (H : JOG/L : NORMAL)
PAL + 5	; CHROMA INVERTED AMP CONTROL (PAL : NONINVERTED)
PB + 5V	; REC/PB MODE SWITCH (H : PB/L : REC)
PB C1	; PB CHROMA S
PBC2, 3	; HIGH FREQUENCY CONVERTED PB CHROMA SIGNAL FOR CHROMA INVERT AMP ACC/ACK/APC DETECTOR
REC CI	; REC CHROMA S
REFI	; CRYSTAL OSC REFERENCE
RF SWP	; RF SWITCHING PULSE
SWPx1/2fH	; PHASE INPUT SIGNAL
VREF	; REFERENCE VOLTAGE FOR APC DETECTOR
XTAL	; CRYSTAL OSC

OUTPUT

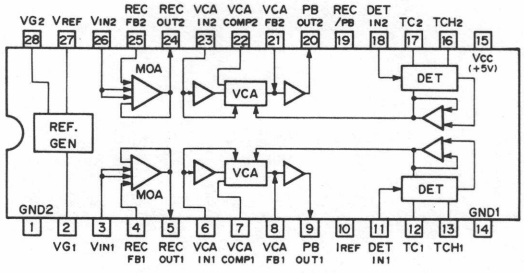
4.32MHzO	; 4.32MHz CARRIER
ACC C	; ACC CHROMA
ACK C	; ACK CHROMA
APC DET	; APC DETECTOR ERROR
BID	; BURST ID
PB CO	; BURST DE-EMPHASIS AND HIGH FREQUENCY CONVERTED PB CHROMA
PH	; PEAK HOLD BURST LEVEL
QB	; CRYSTAL OSC
REC CO	; BURST EMPHASIS AND HIGH FREQUENCYCONVERTED REC CHROMA
REFO	; CRYSTAL OSC REFERENCE
VCO	; 378fH VCO

OTHER

PCMA	; PCM AFTER RECORDING

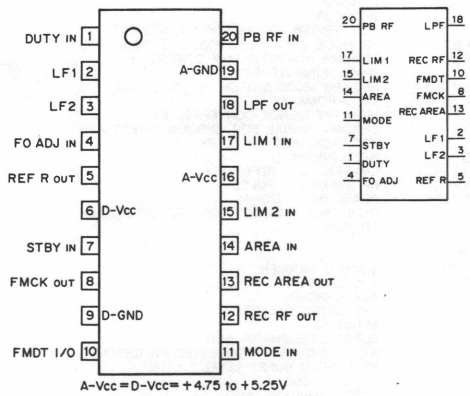


CX20099 (SONY) FLAT PACKAGE
VOLTAGE CONTROLLED AMP/DETECTOR/MAIN OPERATIONAL AMP
— TOP VIEW —



DET ; DETECTOR
TC ; TIME CONSTANT
TCH ; TIME CONSTANT HOLD
VCA ; VOLTAGE CONTROLLED AMP

CX20102 (SONY) FLAT PACKAGE
PCM-RF SIGNAL PROCESSOR
— TOP VIEW —



A — Vcc = D — Vcc = + 4.75 to + 5.25V

INPUT			OPERATION
STBY	MODE	AREA	
0	X	X	POWER SAVE
1	1	X	PB
1	0	1	REC
1	0	0	REC STANDBY

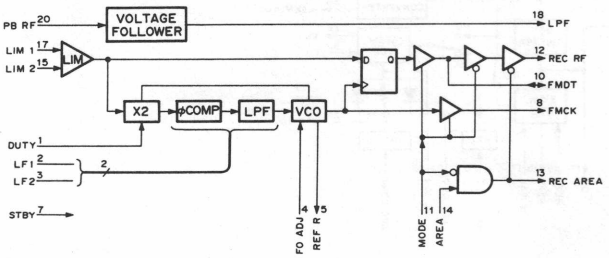
'0' ; LOW LEVEL
'1' ; HIGH LEVEL
X ; DON'T CARE

INPUT
AREA : AREA INPUT (C MOS LEVEL)
DUTY : SAMPLING PHASE FINE ADJUSTMENT
F0 ADJ : VCO FREE RUN FREQUENCY ADJUSTMENT
LIM 1, 2 : LIMITER INPUT
MODE : REC/PB SELECTOR (C MOS LEVEL)
PB RF : VOLTAGE FOLLOWER INPUT
STBY : POWER SAVE CONTROL INPUT
L : STAND BY (C MOS LEVEL)

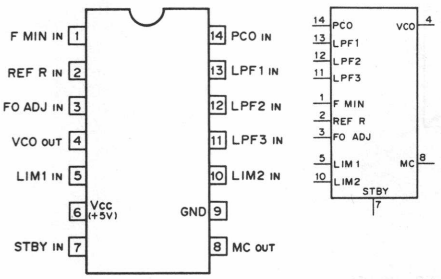
OUTPUT
FMCK : CLOCK OUTPUT
LPF : VOLTAGE FOLLOWER OUTPUT
REC AREA : REC AREA OUTPUT (C MOS LEVEL)
REC RF : REC MODE RF OUTPUT (C MOS LEVEL)
REF R : RESISTOR EXTERNAL ATTACHED VCO

INPUT/OUTPUT
FMDT : DATA INPUT/OUTPUT

OTHER
LF1, 2 : EXTERNAL LOOP FILTER TIME CONSTANT

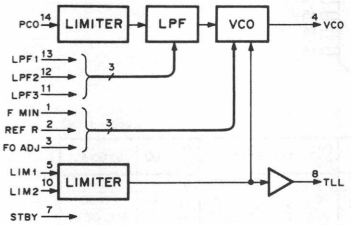


CX20103 (SONY) FLAT PACKAGE
PCM MASTER CLOCK GENERATOR
— TOP VIEW —

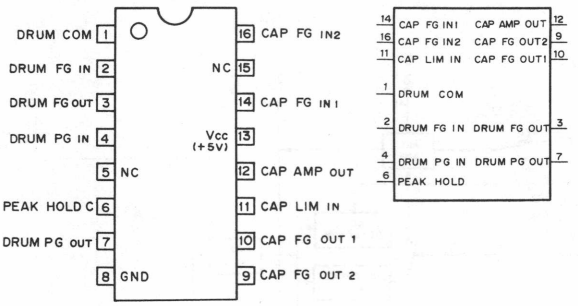


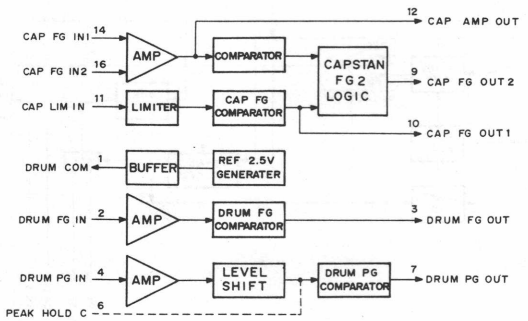
INPUT
FO ADJ : OSCILLATION FREQUENCY ADJUST
F MIN : MINIMUM OSCILLATION FREQUENCY SET
LIM1, 2 : LIMITER INPUT 1, 2
LPF1 — 3 : LOW PASS FILTER 1 — 3
PCO : ERROR SIGNAL INPUT
REF R : REFERENCE RESISTOR
STBY : SWITCH (L : STANDBY/H : ACTIVE)

OUTPUT
MC : MASTER CLOCK
VCO : PHASE SHIFTER



CX20115A (SONY) FLAT PACKAGE
MOTOR SENSE AMP
— TOP VIEW —

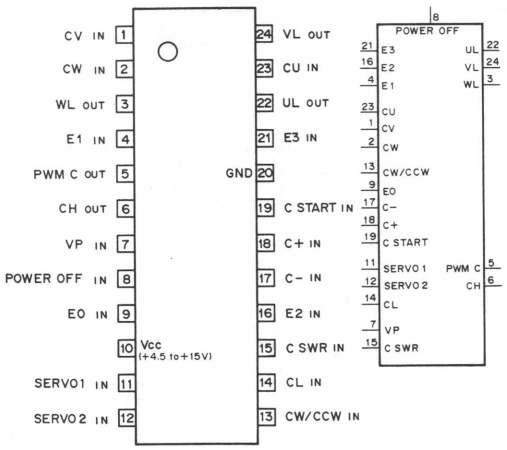




CX20114 (SONY) FLAT PACKAGE

3-PHASE BRUSHLESS DRUM MOTOR DRIVER

– TOP VIEW –

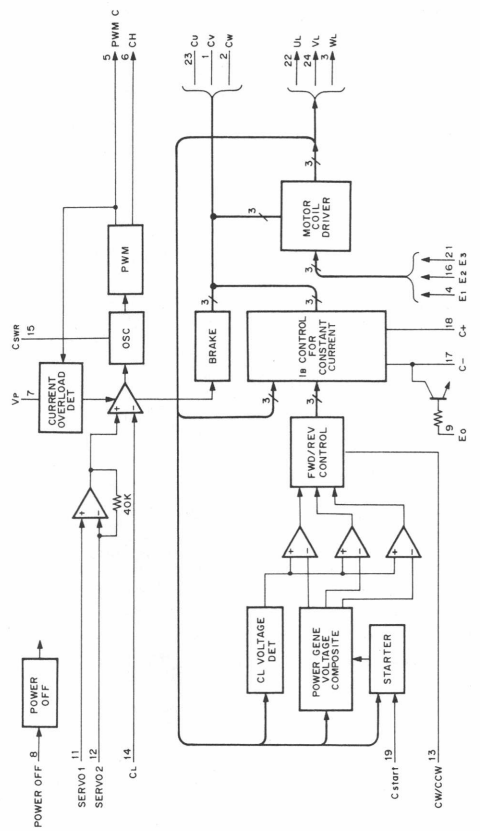


INPUT

C –, C +	; ELECTROMAGNETIC NOISE REDUCTION AND CONSTANT CURRENT
CL	; MOTER DRIVE VOLTAGE DETECT
C START	; MOTOR START UP CIRCUIT OSC
C SWR	; SAWTOOTH WAVE OSC FREQUENCY
CU, CV, CW	; 3-PHASE PREVENTING SWITCHING SPIKE AND RING OSC
CW/CCW	; FORWARD/REVERSE CONTROL
EO	; POWER OFF PROTECT
E1, E2, E3	; 3-PHASE STEP DRIVE
POWER OFF	; OPEN OR GND TO SAVE POWER
SERVO1	; SERVO INPUT AMP NONINVERT INPUT
SERVO2	; SERVO INPUT AMP INVERT INPUT
VP	; CURRENT OVERLOAD DETECT

OUTPUT

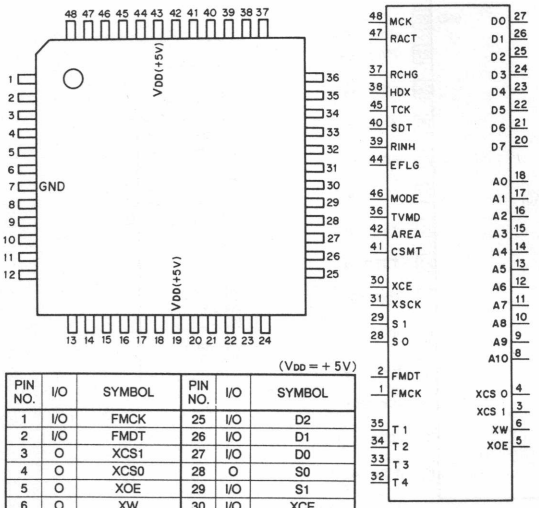
CH	; PWM (PULSE WIDTH MODULATOR)
PWM C	; PWM POWER COLLECTOR
UL, VL, WL	; 3-PHASE MOTOR COIL DRIVE



CX23011 (SONY) FLAT PACKAGE

C-MOS PCM AUDIO SIGNAL PROCESSOR

– TOP VIEW –



(VDD = + 5V)

PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL
1	I/O	FMCK	25	I/O	D2
2	I/O	FMDT	26	I/O	D1
3	O	XCS1	27	I/O	D0
4	O	XCS0	28	O	S0
5	O	XOE	29	I/O	S1
6	O	XW	30	I/O	XCE
7	–	GND	31	I/O	XSCK
8	O	A10	32	I	T4
9	O	A9	33	I	T3
10	O	A8	34	I	T2
11	O	A7	35	I	T1
12	O	A6	36	I	TVMD
13	O	A5	37	I	RCHG
14	O	A4	38	I	HDX
15	O	A3	39	I/O	RINH
16	O	A2	40	I/O	SDT
17	O	A1	41	I/O	CSMT
18	O	A0	42	I	AREA
19	–	VDD	43	–	VDD
20	I/O	D7	44	O	EFLG
21	I/O	D6	45	I	TCK
22	I/O	D5	46	I	MODE
23	I/O	D4	47	I	RACT
24	I/O	D3	48	I	MCK

INPUT

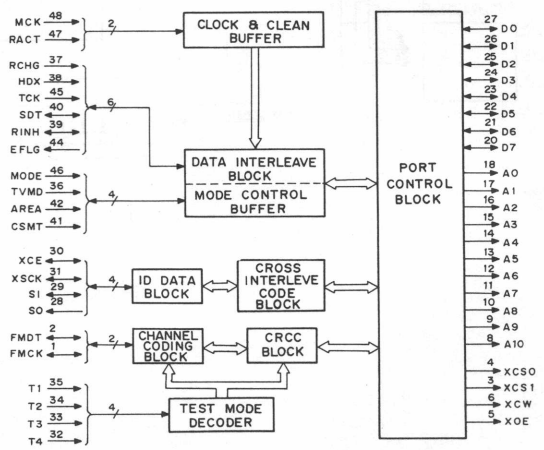
AREA	; PCM AREA SIGNAL INPUT TERMINAL
HDX	; TIMING CLOCK TO TRANSPORT DATA TO CX23012
MCK	; NTSC/CCIR CLOCK INPUT
MODE	; REC/PB CONTROL SIGNAL INPUT TERMINAL OF ALL PCM
RACT	; START/STOP CONTROL INPUT OF CX23012
RCHG	; SELECT TWO 16K-RAM USING ON TBC OR ERROR CORRECTION
TCK	; TIMING CLOCK TO TRANSPORT DATA TO CX23012
TVMD	; NTSC/CCIR STATUS SIGNAL INPUT
T1 – T4	; TEST MODE INPUTS

OUTPUT

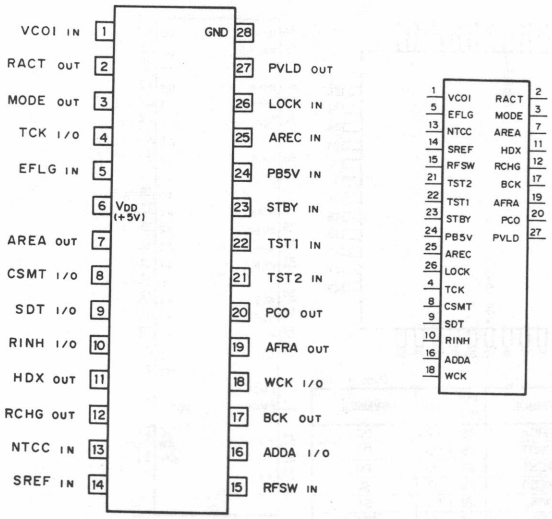
A0 – A10	; RAM ADDRESS OUTPUTS
EFLG	; OUTPUT HIGH LEVEL IN CASE OF ERROR CORRECTION DISABLE
SO	; ID DATA OUTPUT
XCS0,XCS1	; TWO 16K-RAM SELECT CONTROL OUTPUTS
XOE	; 16K-RAM CONTROL OUTPUT
XW	; 16K-RAM WRITING OUTPUT

INPUT/OUTPUT

CSMT	; (PB) OUTPUT HIGH LEVEL AT MUTE MODE ON CX23012 ; (REC) INPUT DATA BLOCK WRITING ON HIGH LEVEL
D0 – D7	; RAM DATA INPUT/OUTPUTS
FMCK	; FM CLOCK INPUT/OUTPUT
FMDT	; FM DATA INPUT/OUTPUT
RINH	; (PB) PROHIBIT TO TURN OVER RCHG SIGNAL ; (REC) PROHIBIT TO WRITE A/D DATA TO 16K-RAM
SDT	; 8 BIT SERIAL DATA TRANSFER TERMINAL
SI	; ID DATA INPUT/OUTPUT
XCE	; ID DATA TRANSPORTION SIGNAL INPUT/OUTPUT
XSCK	; ID DATA TRANSPORTION CLOCK INPUT/OUTPUT

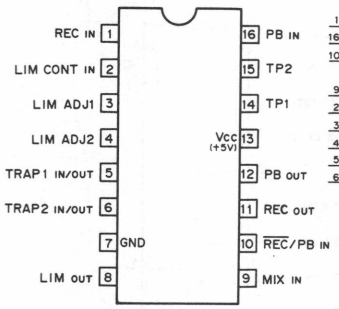


CX23012 (SONY) FLAT PACKAGE
C-MOS PCM AUDIO SIGNAL PROCESSOR
— TOP VIEW —



ADDA ; TRANSFER TERMINAL OF 10 BIT SERIAL DATA
AFRA ; AREA SIGNAL OUTPUT TERMINAL AT AFTER REC
AREA ; PCM AREA SIGNAL OUTPUT TERMINAL
AREC ; AFTER REC CONTROL SIGNAL
CSMT ; (PB) OUTPUT "H" LEVEL AT MUTE MODE ON CX23011
(REC) OUTPUT DATA BLOCK WRITING ON "H" LEVEL
EFLG ; OUTPUT "H" LEVEL IN CASE OF ERROR CORRECTION DISABLE
HDX ; TIMING CLOCK TO TRANSPORT DATA TO CX23011
LOCK ; APPOINT TO START OR STOP PCM SYSTEM
MODE ; REC/PB CONTROL SIGNAL OUTPUT TERMINAL OF ALL PCM
NTCC ; "H" ; NTSC MODE/"L" ; CCIR MODE
PB5V ; REC/PB CONTROL SIGNAL
PCO ; COMPARE fv AND SREF'S PHASE
PVLD ; INDICATE PCM DATA ON THE TAPE
RACT ; START/STOP CONTROL OUTPUT OF CX23011
RCHG ; SELECT TWO 16K RAM USING ON TBC OR ERROR CORRECTION
RFSW ; RF SWITCHING PULSE INPUT TERMINAL
RINH ; (PB) PROHIBIT TO TURN OVER RCHG SIGNAL
(REC) PROHIBIT TO WRITE A/D DATA TO 16K-RAM
SDT ; 8 BIT SERIAL DATA TRANSFAR TERMINAL
SREF ; TIMING SIGNAL INPUT TERMINAL OF PCM
STBY ; INITIALIZE AND POWER SAVE MODE TERMINAL OF PCM
TCK ; TIMING CLOCK TO TRANSPORT DATA TO CX23011
TST1/2 ; TEST MODE CONTROL TERMINAL 1/2
VCOI ; CLOCK INPUT TERMINAL
WCK ; TIMING CLOCK TO TRANSPORT DATA TO A/D, DIA CONVERTER

CX22021 (SONY) FLAT PACKAGE
CHROMA SIDEBAND EMPHASIS/DE-EMPHASIS
— TOP VIEW —

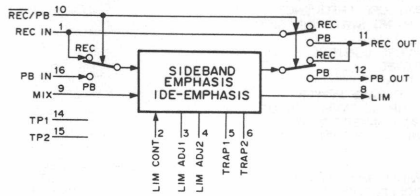


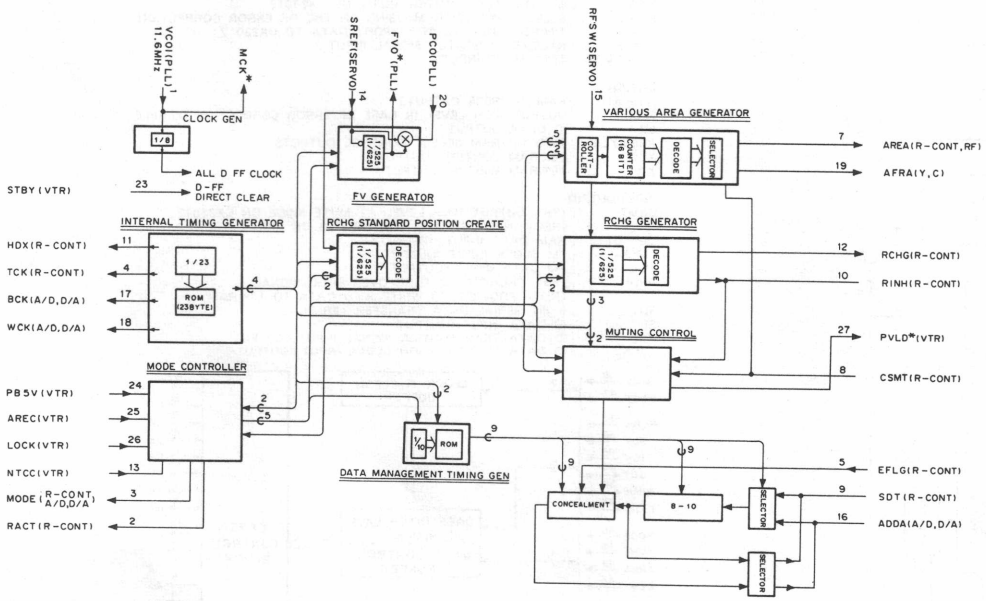
INPUT
LIM CONT : LIMITER AMP CONTROL
MIX : SIGNAL IN TO ADDING AND FEEDBACK CIRCUIT
PB IN : PB CHROMA SIGNAL
REC IN : REC CHROMA SIGNAL
REC/PB : MODE SWITCH (L : REC/H : PB)

OUTPUT
LIM : LIMITER CIRCUIT OUTPUT
PB OUT : PB DE-EMPHASIS SIGNAL
REC OUT : REC EMPHASIS SIGNAL

INPUT/OUTPUT
TRAP1, 2 : TRAP PHASE COMPENSTION

OTHER
LIM ADJ1, 2 : LIMITER GAIN ADJUSTMENT
TP1, 2 : TEST PIN

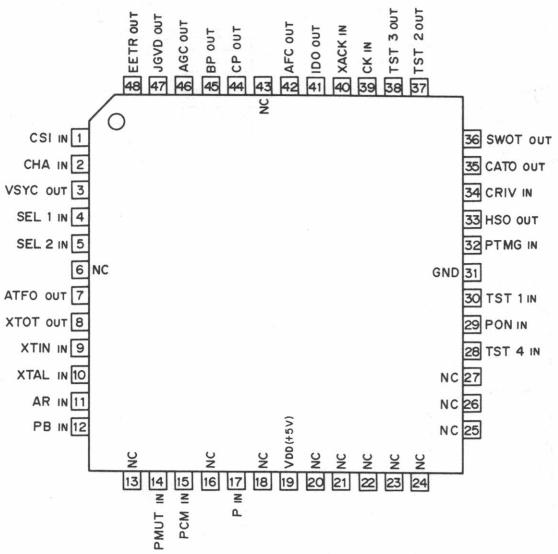


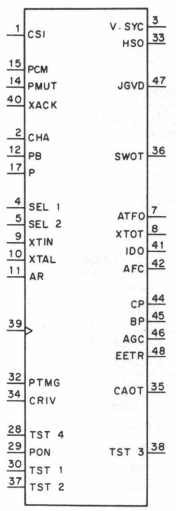


CX23054 (SONY) FLAT PACKAGE

C-MOS PCM/CHROMA SYNC PROCESSOR

– TOP VIEW –



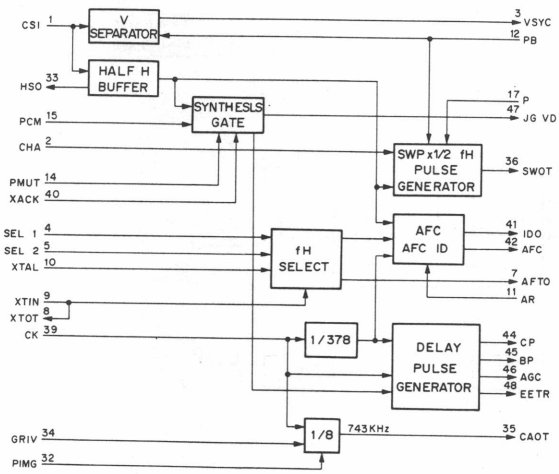


INPUT

AR	: POST RECORDING AREA SIGNAL INPUT
CHA	: RF SWITCHING PULSE INPUT
CK	: MAIN CLOCK INPUT
CRIV	: CHROMA CARRIER REVERSE MODE INPUT
CSI	: COMPOSITE SYNC INPUT
P	: PAL/NTSC MODE SELECT INPUT
PB	: PB/REC MODE SELECT INPUT
PCM	: EIAJ PCM MODE
PMUT	: PLAY BACK MUTE MODE INPUT
PON	: SYSTEM INITIALIZE INPUT
PTMG	: PAL PS TIMING INPUT
SEL1,2	: ATF FREQUENCY SELECT INPUT
TST1,2,4	: TEST PIN
XACK	: ACK MODE INPUT
XTAL	: ATF PILOT CLOCK INPUT
XTIN	: ATF PILOT GENERATOR INPUT

OUTPUT

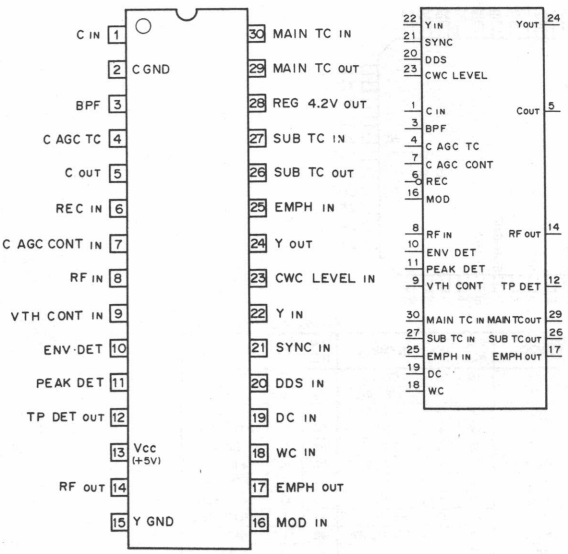
AFC	: AFC CONTROL OUTPUT
ATFO	: ATF PILOT OUTPUT
AGC	: SYNC CLAMP/PEDESTAL CLAMP OUTPUT
BP	: BURST TRAP TIMING OUTPUT
CAOT	: CHROMA CARRIER OUTPUT
CP	: BURST CLOCK TIMING OUTPUT
EETR	: EE TRAP OUTPUT
HSO	: H SYNC OUTPUT
IDO	: APC ID/AFC ID CONTROL OUTPUT
JGVD	: VIRS KILLER/PMUT OUTPUT
SWOT	: NTSC PI TIMING OUTPUT
TST3	: TEST PIN
VSYC	: V SYNC SEPARATOR OUTPUT
XTOT	: ATF PILOT GENERATOR OUTPUT

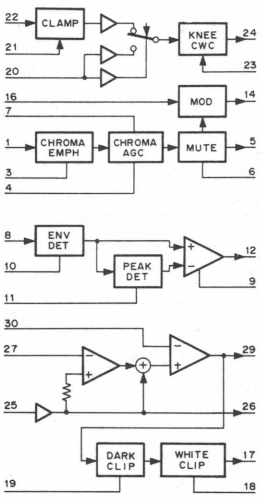


CXA1047M (SONY)

VIDEO Y/C REC PROCESSOR

– TOP VIEW –





INPUT

BPF	: BAND PASS FILTER
C AGC CONT	: CHROMA AGC LEVEL CONTROL
C AGC TC	: CHROMA AGC TIME CONSTANT
C IN	: CHROMA INPUT
CWC LEVEL	: CAMERA WHITE CLIP LEVEL
DC	: DARK CLIP LEVEL
DDS IN	: DATA DISPLAY SYSTEM INPUT
EMPH IN	: EMPHASIS INPUT
ENV DET	: ENVELOP DETECT TIME CONSTANT
MAIN TC IN	: MAIN TIME CONSTANT INPUT
MOD IN	: MODULATOR INPUT
PEAK DET	: PEAK DETECT TIME CONSTANT
REC	: REC/PB SWITCH
RF IN	: PB RF INPUT
SUB TC IN	: SUB EMPHASIS TIME CONSTANT AND LIMITER INPUT
SYNC IN	: COMPOSITE SYNC INPUT
VTH CONT	: ENVELOPE PEAK DETECT LEVEL CONTROL
WC	: WHITE CLIP LEVEL
Y IN	: Y INPUT

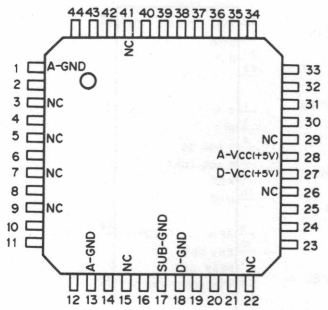
OUTPUT

C OUT	: CHROMA OUTPUT
EMPH OUT	: EMPHASIS OUTPUT
MAIN TC OUT	: MAIN TIME CONSTANT OUTPUT
RF OUT	: FM MODULATOR OUTPUT
SUB TC OUT	: SUB EMPHASIS TIME CONSTANT
TP DET	: ENVELOPE PEAK DETECT OUTPUT
Y OUT	: Y (WITH DDS) OUTPUT

CXA1204Q (SONY) FLAT PACKAGE

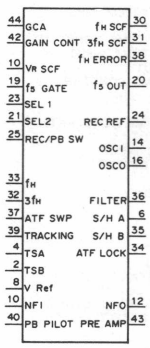
C-MOS ATF (Automatic Track Finding) FOR 8mm VTR

– TOP VIEW –



(A – Vcc = D – Vcc = +5V)

PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL
1	–	A-GND	16	O	OSCO	31	O	3fH SCF
2	I	TSB	17	–	SUB-GND	32	I	3fH
3	–	NC	18	–	D-GND	33	I	fH
4	I	TSA	19	I	fs GATE	34	O	ATF LOCK
5	–	NC	20	O	fs OUT	35	O	S/H B
6	O	S/H A	21	I	SEL2	36	O	FILTER
7	–	NC	22	–	NC	37	I	ATF SWP
8	I	VREF	23	I	SEL1	38	O	fH ERROR
9	–	NC	24	O	REC REF	39	I	TRACKING
10	I	VR SCF	25	I	REC/PB SW	40	I	PB PILOT
11	I	NFI	26	–	NC	41	–	NC
12	O	NFO	27	–	D-Vcc	42	I	GAIN CONT
13	–	A-GND	28	–	A-Vcc	43	O	PRE AMP
14	I	OSCI	29	–	NC	44	I	GCA
15	–	NC	30	O	fH SCF			



INPUT

3fH	: 47KHz BPF SIGNAL
ATF SWP	: ATF SWITCHING PULSE
fH	: 16KHz BPF SIGNAL
fs	: fs OUTPUT CONTROL
GAIN CONT	: AGC CONTROL
GCA	: AGC INPUT SIGNAL
NFI	: OP AMP NEGATIVE PHASE
OSCI	: OSCILLATOR FOR FREQUENCY DEMULTIPLIER
PB PILOT	: PB PILOT SIGNAL
REC/PB SW	: SWITCH CONTROL SIGNAL (L : REC/H : PB)
SEL1, SEL2	: REC PILOT SIGNAL
TRACKING	: TRACKING ADJUSTMENT
TS A, TS B	: SAMPLE HOLD TIMING PULSE
V Ref	: REFERENCE VOLTAGE FOR ANALOG AMP
VR SCF	: REFERENCE VOLTAGE FOR SWITCHED CAPACITOR FILTER

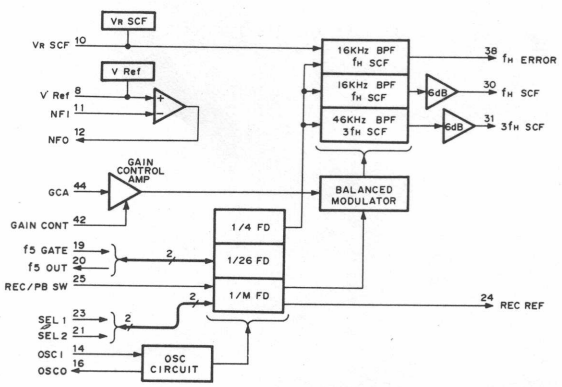
OUTPUT

3fH SCF	: 47KHz SWITCHED CAPACITOR FILTER
ATF LOCK	: ATF LOCK DETECT SIGNAL
fH ERROR	: 16KHz ERROR PHASE SIGNAL
fH SCF	: 16KHz SWITCHED CAPACITOR FILTER
FILTER	: PEAK DETECT SIGNAL
fs OUT	: 1/26xOSC OUTPUT (228KHz)
NFO	: OP AMP POSITIVE PHASE
OSCO	: OSCILLATOR FOR FREQUENCY DEMULTIPLIER
PRE AMP	: PB PILOT SIGNAL AMP
REC REF	: REC PILOT REFERENCE SIGNAL
S/H A, S/H B	: SAMPLE/HOLD PULSE

INPUT		DIVIDING RATIO
SEL1	SEL2	
0	0	1/40
0	1	1/50
1	0	1/36
1	1	1/58

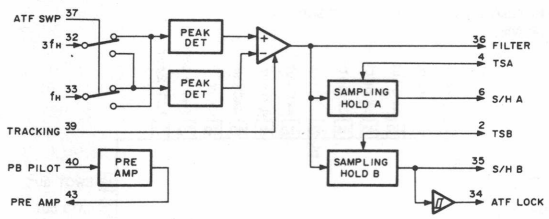
0 : LOW LEVEL (up to 0.5V)

1 : HIGH LEVEL (at least 3.5V)



NOTE : FD ; FREQUENCY DEMULTIPLIER

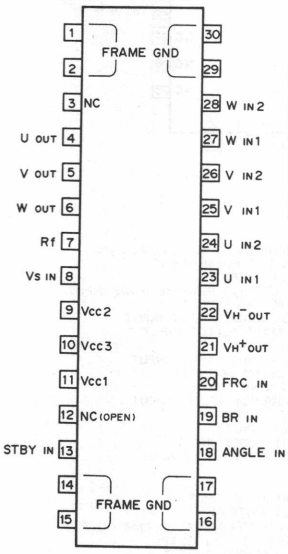
SCF ; SWITCHED CAPACITOR FILTER

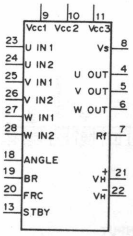


CXA1127M (SONY) FLAT PACKAGE

CAPSTAN MOTOR DRIVER

– TOP VIEW –





INPUT

BR	: MOTOR BRAKE (H : STOP, L : PLAY)
FRC	: FWD/REV CONTROL (H : FWD, L : REV)
STBY	: STAND-BY (GND : POWER OFF)
U IN1, 2	: U PHASE INPUTS
V IN1, 2	: V PHASE INPUTS
Vs	: MOTOR INPUT VOLTAGE (Vs < Vcc2)
W IN1, 2	: W PHASE INPUTS

OUTPUT

U OUT	: U PHASE OUTPUT
V OUT	: V PHASE OUTPUT
VH+, VH–	: HALL BIAS CURRENT
W OUT	: W PHASE OUTPUT

OTHERS

Rf	: GND FOR OUTPUT TRANSISTOR
Rs	: GND FOR OUTPUT DRIVER

NOTE :

Vcc1	+4 to +7V	OPEN
Vcc2	+4 to +12V	+6 to +12V
Vcc3	short to Vcc1	short to Vcc2
Vs	Vs<Vcc2	Vs<Vcc2

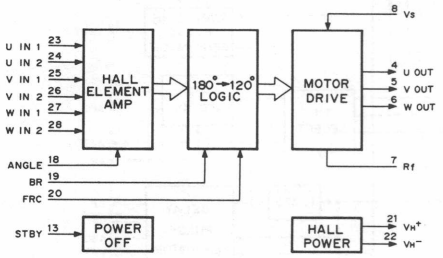
INPUT			FRC	FUNCTION
U	V	W		
H	H	L	0	W→V PHASE
			1	V→W PHASE
H	L	L	0	W→U PHASE
			1	U→W PHASE
L	L	H	0	V→W PHASE
			1	W→V PHASE
L	H	L	0	U→V PHASE
			1	V→U PHASE
H	L	H	0	V→U PHASE
			1	U→V PHASE
L	H	H	0	U→W PHASE
			1	W→U PHASE

H : HIGH LEVEL

L : LOW LEVEL

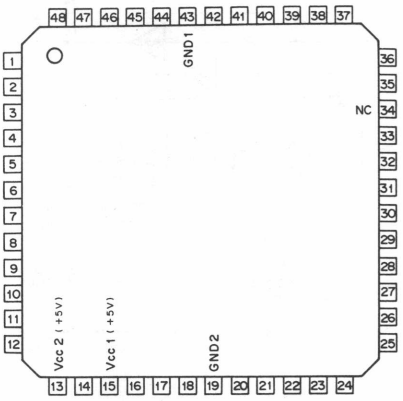
1 : 2.0 to Vcc2

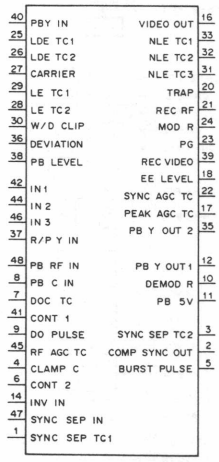
0 : 0 to 0.3V



CXA1230AR (SONY) FLAT PACKAGE

VIDEO Y SIGNAL PROCESSOR
– TOP VIEW –





(V_{DD} = + 5V)

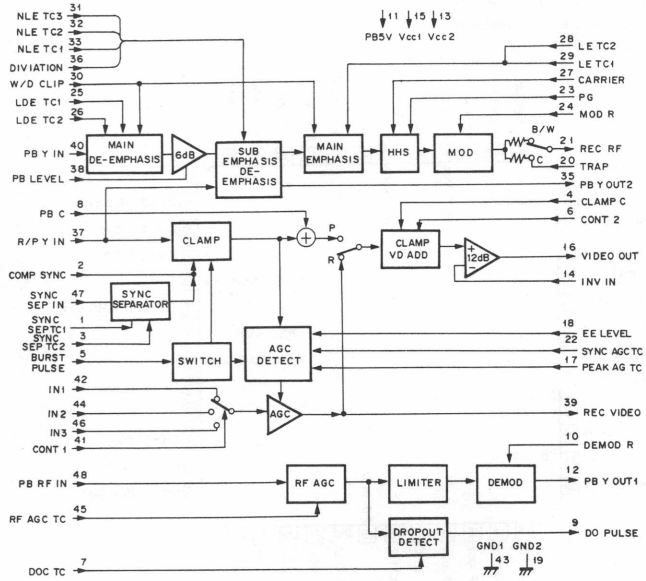
PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL
1	I	SYNC SEP TC1	17	I	PEAK AGC TC	33	I	NLE TC1
2	O	COMP SYNC	18	I	EE LEVEL	34	–	NC
3	I	SYNC SEP TC2	19	–	GND2	35	O	PB Y OUT2
4	I	CLAMP C	20	I	TRAP	36	I	DEVIATION
5	I	BURST PULSE	21	O	REC RF	37	I	R/P Y IN
6	I	CONT2	22	I	SYNC AGC TC	38	I	PB LEVEL
7	I	DOC TC	23	I	PG	39	O	REC VIDEO
8	I	PB C	24	I	MOD R	40	I	PB Y IN
9	O	DO PULSE	25	I	LDE TC1	41	I	CONT1
10	I	DEMOD R	26	I	LDE TC2	42	I	IN1
11	I	PB 5V	27	I	CARRIER	43	–	GND1
12	O	PB Y OUT1	28	I	LE TC2	44	I	IN2
13	–	Vcc2	29	I	LE TC1	45	I	RF AGC TC
14	I	INV IN	30	I	W/D CLIP	46	I	IN3
15	–	Vcc1	31	I	NLE TC3	47	I	SYNC SEP IN
16	O	VIDEO OUT	32	I	NLE TC2	48	I	PB RF IN

INPUT

BURST PULSE	; BURST PULSE INPUT
CARRIER	; FM MODULATOR CARRIER CONTROL INPUT
CLAMP C	; EXTERNAL CAPACITOR FOR CLAMPING INPUT
CONT 1	; INTERNAL SWITCH CONTROL INPUT
CONT 2	; MUTING AND VD-ADD CONTROL INPUT
DEMOD R	; EXTERNAL RESISTOR FOR FM DEMODULATOR INPUT
DEVIATION	; DEVIATION CONTROL INPUT
DOC TC	; EXTERNAL CAPACITOR FOR DROPOUT DETECTION INPUT
EE LEVEL	; SYNC AGC CONTROL INPUT
IN 1 – IN 3	; RECORDING VIDEO SIGNAL INPUTS
INV IN	; INVERTING INPUT FOR VIDEO CIRCUIT
LDE TC1,TC2	; EXTERNAL RESISTOR FOR LINEAR DE-EMPHASIS INPUTS
LE TC1,TC2	; EXTERNAL CR FOR LINEAR EMPHASIS INPUTS
MOD R	; EXTERNAL RESISTOR FOR FM MODULATOR INPUT
NLE TC1 – NLE TC3	; EXTERNAL CAPACITOR FOR NON-LINEAR EMPHASIS INPUTS
PB 5V	; POWER FOR PLAYBACK SYSTEM INPUT
PB C	; PB CHROMA INPUT AND M/C CONTROL INPUT
PB LEVEL	; PB Y OUT2 SIGNAL CONTROL INPUT
PB RF IN	; PB RF (FM) INPUT
PB Y IN	; PB Y SIGNAL FOR DE-EMPHASIS INPUT
PEAK AGC TC	; EXTERNAL CR INPUT FOR PEAK AGC
PG	; PG (30Hz) SIGNAL INPUT
RF AGC TC	; EXTERNAL CR FOR RF AGC INPUT
R/P Y IN	; Y SIGNAL FOR CLAMPING INPUT
SYNC AGC TC	; EXTERNAL CR INPUT FOR SYNC AGC
SYNC SEP IN	; SYNC SEPARATION SIGNAL INPUT
SYNC SEP TC1,TC2	; EXTERNAL CR INPUT FOR SYNC SEPARATION
TRAP	; TRAP INPUT
W/D CLIP	; LINEAR EMPHASIS AND W/D CLIP CONTROL INPUT

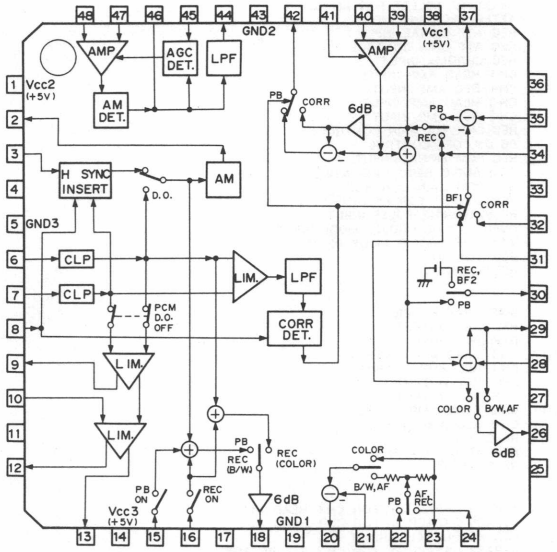
OUTPUT

COMP SYNC	; COMPOSITE SYNC OUTPUT
DO PULSE	; DROPOUT PULSE OUTPUT
PB Y OUT1	; FREQUENCY DEMODULATOR OUTPUT
PB Y OUT2	; PB Y OUTPUT
REC RF	; Y-FM SIGNAL OUTPUT
REC VIDEO	; AMPLIFIED Y SIGNAL OUTPUT
VIDEO OUT	; VIDEO OUTPUT



CXA1231AR (SONY) FLAT PACKAGE

Y/C SEPARATION COMB FILTER
– TOP VIEW –



PIN No.	PIN NAME
1	Vcc2
2	AM OUT
3	HD IN
4	XTAL
5	GND3
6	YD IN
7	Y IN
8	CORR ADJ
9	Y-YD OUT
10	Y-YD IN
11	PCM IN
12	LIM OUT2
13	LIM OUT1
14	Vcc3
15	PB MIX IN1
16	REC MIX IN

PIN No.	PIN NAME
17	DOP IN
18	Y OUT2
19	GND1
20	Y OUT1
21	PB MIX IN2
22	PB Y IN
23	FSC TRAP
24	REC Y IN
25	ACK IN
26	REC Y OUT
27	BF1
28	Y BPF IN
29	Y OUT3
30	CT OUT
31	CT IN2
32	CT IN1

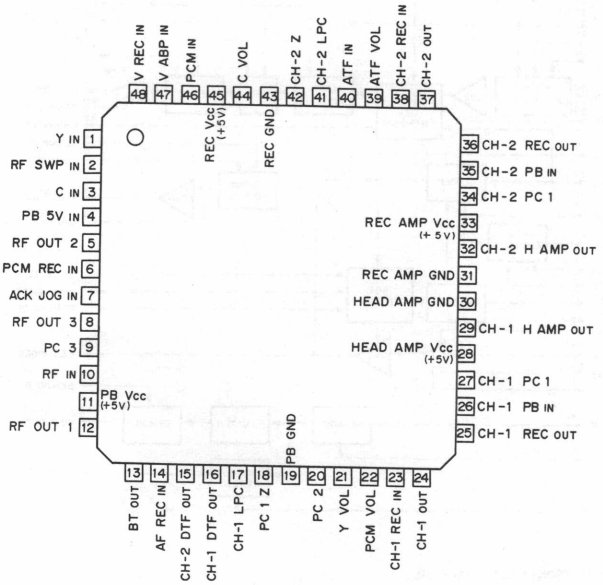
PIN No.	PIN NAME
33	BF2
34	REC VIDEO IN
35	PB CHROMA IN
36	PB 5V IN
37	CDL OUT
38	Vcc1
39	CDL1 IN
40	CDL2 IN
41	CD ADJ
42	C OUT
43	GND2
44	YD OUT
45	YD ADJ
46	PEAK HOLD
47	YDL1 IN
48	YDL2 IN

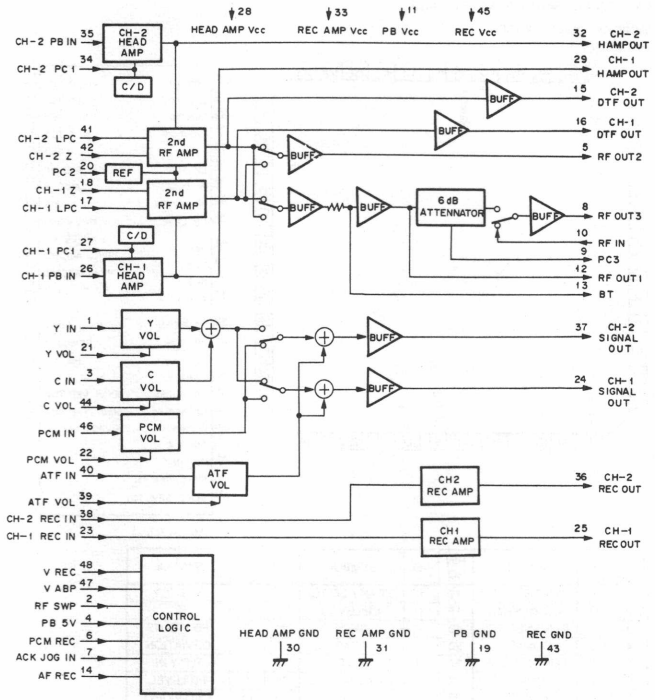
ACK	; ACKNOWLEDGMENT	GND	; GROUND
ADJ	; ADJUSTMENT	H	; HORIZONTAL
AF	; AFTER RECODING	HD	; H DRIVE PULSE
AGC	; AUTOMATIC GAIN CONTROL	IN	; INPUT
AM	; AMPLITUDE MODULATION	LIM	; LIMITER
AMP	; AMPLIFIER	LPF	; LOW PASS FILTER
BF	; BURST FLAG	MIX	; MIXER
BPF	; BAND PASS FILTER	OUT	; OUTPUT
C	; CHROMA	PB	; PLAYBACK
CD	; DEFERED C	PCM	; PULSE CODE MODULATION
CDL	; C DELAY LINE	REC	; RECORDING
CLP	; CLAMP	SYNC	; SYNCHRONIZATION
CORR	; CORRELATION	Vcc	; POWER
CT	; C CROSSTALK	XTAL	; CRYSTAL
DET	; DETECTOR	Y	; LUMINANCE
DOP	; DROP-OUT	YD	; DEFERRED Y
D.O	; DROP-OUT	YDL	; Y DELAY LINE
FSC	; FREQUENCY OF SUB-CARRIER		

CXA1234AR (SONY) FLAT PACKAGE

VIDEO RF REC/PB AMPLIFIER

– TOP VIEW –





INPUT

ACK JOG IN	: VIDEO/RF SELECT FOR RF OUT 3
AF REC	: AFTER RECODING MODE
ATF IN	: REC ATF SIGNAL INPUT
ATF VOL	: REC ATF GAIN CONTROL
C IN	: REC CHROMA INPUT
CH-1 PB IN	: CH-1 HEAD AMP INPUT
CH-1 REC IN	: CH-1 REC AMP INPUT
CH-2 PB IN	: CH-2 HEAD AMP INPUT
CH-2 REC IN	: CH-2 REC AMP INPUT
C VOL	: REC CHROMA GAIN CONTROL
PB 5V	: PB ON/OFF CONTROL
PCM IN	: REC PCM SIGNAL INPUT
PCM REC	: PCM AUDIO RECORDING MODE
PCM VOL	: REC PCM GAIN CONTROL
RF IN	: VIDEO INPUT FOR RF OUT 3
RF SWP IN	: RF SWITCHING PULSE INPUT
V ABP IN	: OVER LAP RECORDING MODE INPUT
V REC IN	: VIDEO RECORDING MODE INPUT
Y IN	: REC Y INPUT
Y VOL	: REC Y GAIN CONTROL

OUTPUT

BT	: BIAS TRAP FILTER
CH-1 OUT	: REC CH-1 OUTPUT
CH-1 DTF OUT	: DTF CH-1 OUTPUT
CH-1 H AMP OUT	: CH-1 HEAD AMP OUTPUT
CH-1 REC OUT	: CH-1 REC AMP OUTPUT
CH-2 OUT	: REC CH-2 OUTPUT
CH-2 DTF OUT	: DTF CH-2 OUTPUT
CH-2 H AMP OUT	: CH-2 HEAD AMP OUTPUT
CH-2 REC OUT	: CH-2 REC AMP OUTPUT
RF OUT 1	: RF OUTPUT FOR VIDEO
RF OUT 2	: RF OUTPUT FOR PCM
RF OUT 3	: RF OUTPUT

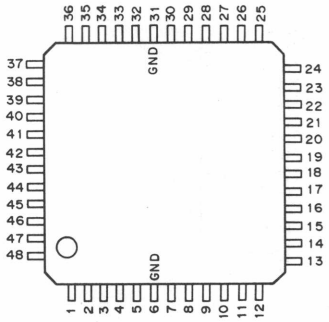
OTHERS

CH-1 LPC	: BYPASS CAPACITOR FOR CH-1 HEAD AMP
CH-1 PC1	: BYPASS CAPACITOR FOR CH-1 HEAD AMP
CH-1 Z	: LCR RESONANCE CIRCUIT
CH-2 LPC	: BYPASS CAPACITOR FOR CH-2 2nd RF AMP
CH-2 PC1	: BYPASS CAPACITOR FOR CH-2 HEAD AMP
CH-2 Z	: LCR RESONANCE CIRCUIT
PC 2	: BYPASS CAPACITOR
PC 3	: BYPASS CAPACITOR FOR ATTENUATER

CXD1066Q (SONY)

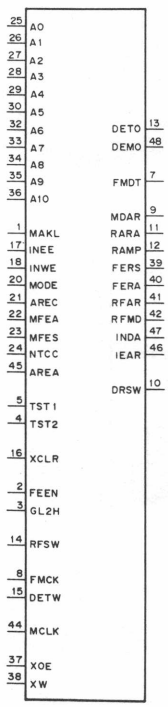
C-MOS PCM AUDIO INDEX TIMING GENERATOR

– TOP VIEW –



(V_{DD} = + 5V)

PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGANL	PIN NO.	I/O	SYGNAL	PIN NO.	I/O	SYGNAL
1	I	MAKL	13	O	DETO	25	I	A0	37	I	XOE
2	I	FEEN	14	I	RFSW	26	I	A1	38	I	XW
3	I	GL 2H	15	I	DETW	27	I	A2	39	O	FERS
4	I	TST2	16	I	XCLR	28	I	A3	40	O	FERA
5	I	TST1	17	I	INEE	29	I	A4	41	O	RFAR
6	–	GND	18	I	INWE	30	I	A5	42	O	RFMD
7	I/O	FMDT	19	–	V_{DD}	31	–	GND	43	–	V_{DD}
8	I	FMCK	20	I	MODE	32	I	A6	44	I	MCLK
9	O	MDAR	21	I	AREC	33	I	A7	45	I	AREA
10	O	DRSW	22	I	MFEA	34	I	A8	46	O	IEAR
11	O	RARA	23	I	MFES	35	I	A9	47	O	INDA
12	O	RAMP	24	I	NTCC	36	I	A10	48	O	DEMO



INPUT

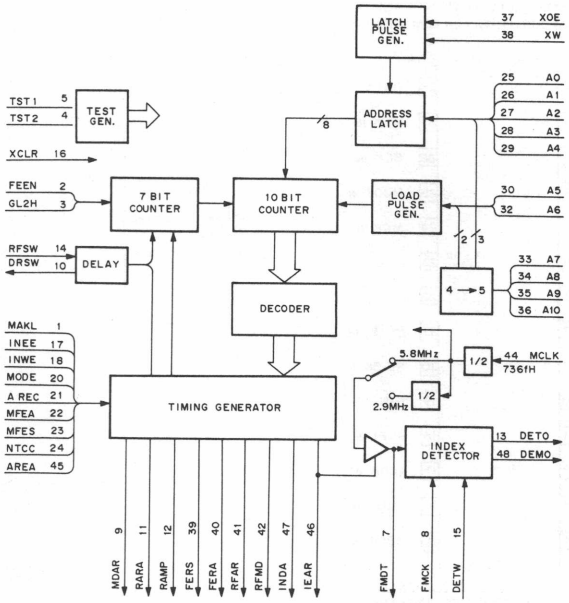
A0 ~ A10 ; ADDRESS BUS0-10
AREA ; PCM DATA READ/WRITE AREA
AREC ; AFTER REC ENABLE
DETW ; INDEX DETECT WINDOW
FEEN ; INDEX WRITE/ERASE AREA MODIFY (H : ON/L : OFF)
FMCK ; PCM RF DATA CLOCK (736fH)
GL2H ; INDEX WRITE/ERASE AREA MODIFY SELECT
INEE ; INDEX SIGNAL ERASE ENABLE
INWE ; INDEX SIGNAL WRITE ENABLE
MAKL ; VIDEO MASK SELECT
MCLK ; MASTER CLOCK (736fH)
MFEA ; VIDEO MASK SELECT
MFES ; FALSE MD SELECT TIMING
MODE ; REC/PB SELECT (H : PB/L : REC)
NTCC ; NTSC/CCIR SELECT (H : NTSC/L : CCIR)
RFSW ; RF SWITCHING PULSE
TST1, 2 ; TEST
XCLR ; ALL CLEAR
XOE ; RAM OUTPUT ENABLE
XW ; RAM WRITE ENABLE

OUTPUT

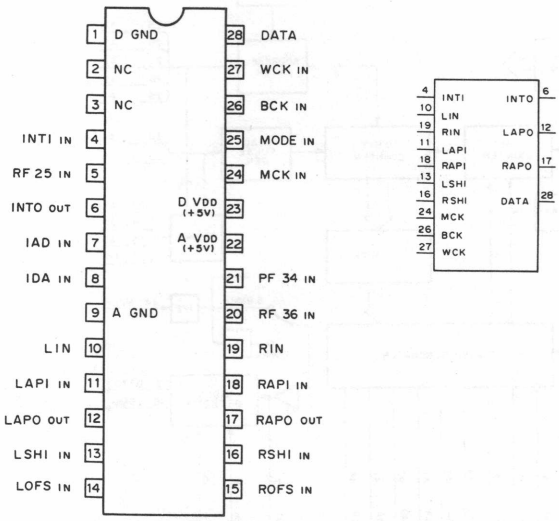
DEMO ; FM DEMODULATE
DETO ; INDEX DETECT
DRSW ; DELAYED RF SWITCHING PULSE
FERA ; VIDEO MASK TIMING
FERS ; FALSE HD SELECT TIMING
IEAR ; INDEX WRITE/ERASE AREA
INDA ; INDEX WRITE AREA
MDAR ; PCM DATA READ/WRITE AREA FOR RAM CONTROLLER
RAMP ; REC/PB AMP DC BIAS CONTROL SIGNAL
RARA ; REC/PB AMP REC AREA
RFAR ; PCM EQ AMP REC AREA
RF MD ; PCM EQ AMP REC/PB MODE

INPUT/OUT

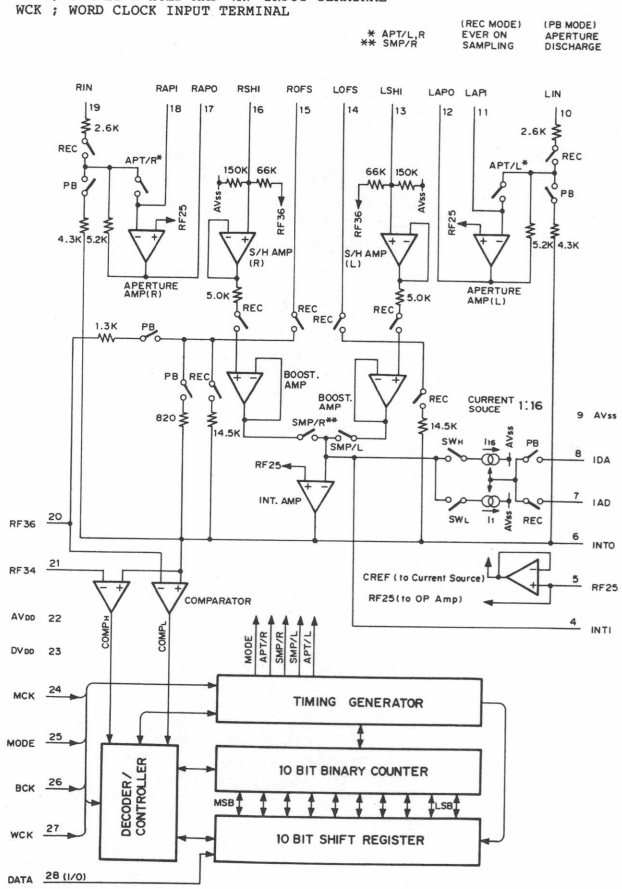
FMDT ; PCM RF DATA (Bi φ)



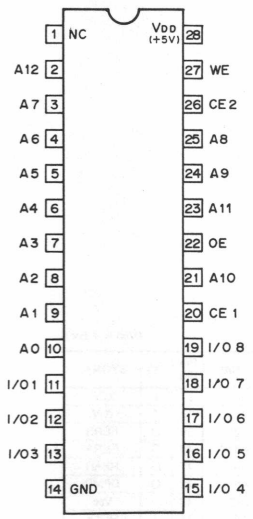
CXD1077M (SONY) MINI FLAT PACKAGE
C-MOS A/D, D/A CONVERTER FOR PCM AUDIO
— TOP VIEW —

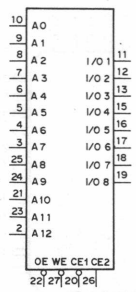


BCK ; BIT CLOCK INPUT TERMINAL
DATA ; DATA INPUT/OUTPUT TERMINAL
IAD ; INTEGRATION CURRENT SET UP TERMINAL (REC MODE)
IDA ; INTEGRATION CURRENT SET UP TERMINAL (PB MODE)
INTI ; INTEGRATION AMP INPUT TERMINAL
INTO ; INTEGRATION AMP OUTPUT TERMINAL
LAPI ; APERTURE AMP INPUT TERMINAL (L)
LAPO ; APERTURE AMP OUTPUT TERMINAL (L)
L IN ; ANALOG SIGNAL INPUT TERMINAL (L)
LOFS ; OFFSET CORRECT TERMINAL (L)
LSHI ; SAMPLE & HOLD AMP (L) INPUT TERMINAL
MCK ; MASTER CLOCK INPUT TERMINAL
MODE ; REC MODE/PB MODE SET UP TERMINAL
RAPO ; APERTURE AMP OUTPUT TERMINAL (R)
RAPI ; APERTURE AMP INPUT TERMINAL (R)
R IN ; ANALOG SIGNAL INPUT TERMINAL (R)
RF25 ; IMAGINE CONTACT ELECTORIC POTENTIAL SET UP TERMINAL
RF34 ; HIGHER RANK VOLTAGE SET UP TERMINAL
RF36 ; (REC) LOW RANK COMPARATOR VOLTAGE OR
(PB) DISCHARGE VOLTAGE SET UP TERMINAL
ROFS ; OFFSET CORRECT TERMINAL (R)
RSHI ; SAMPLE & HOLD AMP (R) INPUT TERMINAL
WCK ; WORD CLOCK INPUT TERMINAL



CXK5864BM-12L (SONY) (ACCESS TIME = 120nS) FLAT PACKAGE
C-MOS 64K(8192x8)-BIT STATIC RAM
— TOP VIEW —

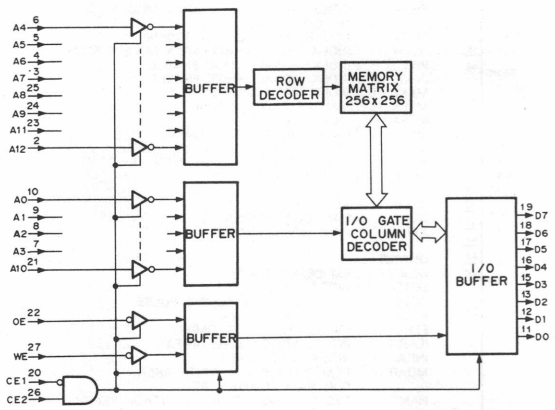




A0-A12 ; ADDRESS INPUT
CE1, CE2 ; CHIP ENABLE INPUT
I/O1-I/O8 ; DATA INPUT/OUTPUT
OE ; OUTPUT ENABLE INPUT
WE ; WRITE ENABLE INPUT

CE1	CE2	OE	WE	MODE	I/O TERMINAL
1	X	X	X	NOT SELECT	HIGH IMPEDANCE
X	0	X	X	NOT SELECT	HIGH IMPEDANCE
0	1	1	1	OUTPUT DISABLE	HIGH IMPEDANCE
0	1	0	1	READ	OUTPUT DATA
0	1	X	0	WRITE	INPUT DATA

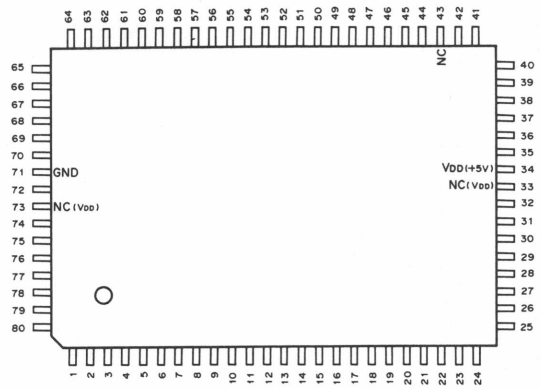
0;LOW LEVEL
1;HIGH LEVEL
X;DON'T CARE



CXP5078 (SONY) FLAT PACKAGE

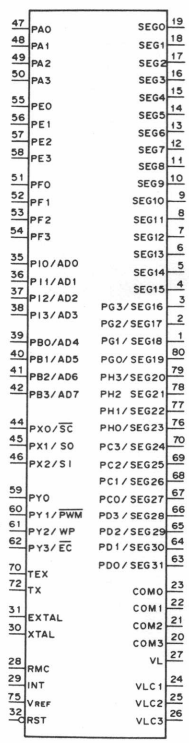
C-MOS 4-BIT MICROCOMPUTER

– TOP VIEW –



PIN ASSIGNMENT (V_{DD} = + 5V)

PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL
1	O	PG1/SEG18	21	O	COM2	41	I/O	PB2/AD6	61	I	PY2/WP
2	O	PG2/SEG17	22	O	COM1	42	I/O	PB3/AD7	62	I	PY3/$\overline{EC}$
3	O	PG3/SEG16	23	O	COM0	43	–	–	63	I/O	PD0/SEG31
4	O	SEG15	24	I	V_{LC1}	44	I/O	PX0/$\overline{SC}$	64	I/O	PD1/SEG30
5	O	SEG14	25	I	V_{LC2}	45	I/O	PX1/SO	65	I/O	PD2/SEG29
6	O	SEG13	26	I	V_{LC3}	46	I	PX2/SI	66	I/O	PD3/SEG28
7	O	SEG12	27	O	V_L	47	I/O	PA0	67	I/O	PC0/SEG27
8	O	SEG11	28	I	RMC	48	I/O	PA1	68	I/O	PC1/SEG26
9	O	SEG10	29	I	INT	49	I/O	PA2	69	I/O	PC2/SEG25
10	O	SEG9	30	O	XTAL	50	I/O	PA3	70	I/O	PC3/SEG24
11	O	SEG8	31	I	EXTAL	51	I/O	PF0	71	–	GND
12	O	SEG7	32	I/O	RST	52	I/O	PF1	72	O	TX
13	O	SEG6	33	–	–	53	I/O	PF2	73	–	–
14	O	SEG5	34	–	V_{DD}	54	I/O	PF3	74	I	TEX
15	O	SEG4	35	I/O	PI0/AD0	55	I/O	PE0	75	I	V_{REF}
16	O	SEG3	36	I/O	PI1/AD1	56	I/O	PE1	76	O	PH0/SEG23
17	O	SEG2	37	I/O	PI2/AD2	57	I/O	PE2	77	O	PH1/SEG22
18	O	SEG1	38	I/O	PI3/AD3	58	I/O	PE3	78	O	PH2/SEG21
19	O	SEG0	39	I/O	PB0/AD4	59	O	PY0	79	O	PH3/SEG20
20	O	COM3	40	I/O	PB1/AD5	60	O	PY1/$\overline{PWM}$	80	O	PG0/SEG19



INPUT

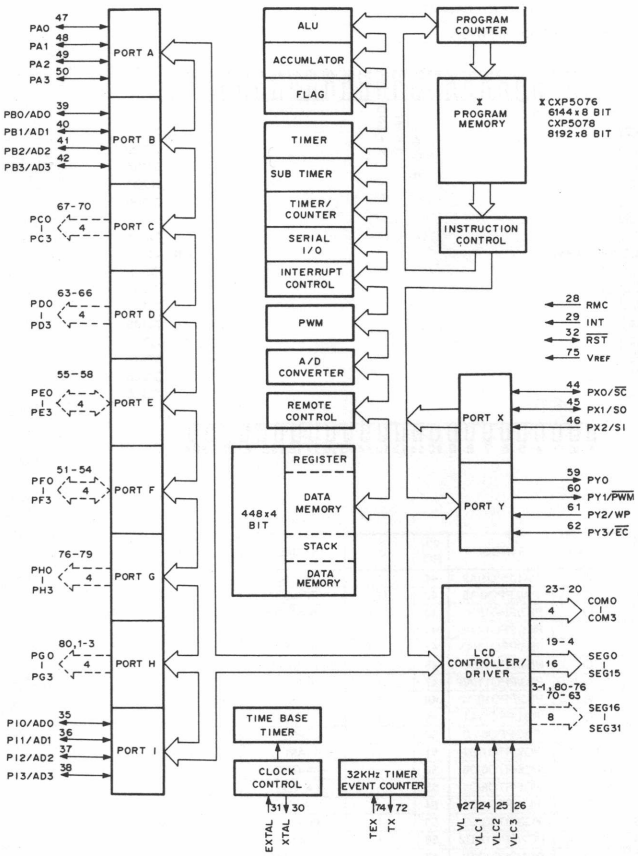
AD0 – AD7	: A/D CONVERT DATA INPUTS
EC	: EVENT COUNT CLOCK INPUT
EXTAL	: CLOCK INPUT
INT	: INTERRUPT INPUT
RMC	: REMOTE CONTROL INPUT
SC	: SERIAL CLOCK INPUT
SI	: SERIAL INPUT
TEX	: 32KHz TIMER/COUNTER CLOCK INPUT
$V_{LC1} – V_{LC3}$	: POWER FOR LCD
V_{REF}	: REFERRENCE VOLTAGE INPUT
WP	: WAKE UP INPUT

OUTPUT

COM0 – COM3	: COMON OUTPUTS
PC0 – PC3	: PORT C
PD0 – PD3	: PORT D
PG0 – PG3	: PORT G
PH0 – PH3	: PORT H
PWM	: PWM GENERATOR OUTPUT
SEG0 – SEG31	: SEGMENT OUTPUTS
SO	: SERIAL OUTPUT
TX	: 32KHz TIMER/COUNTER CLOCK OUTPUT
V_L	: CUT OFF
XTAL	: CLOCK OUTPUT

INPUT/OUTPUT

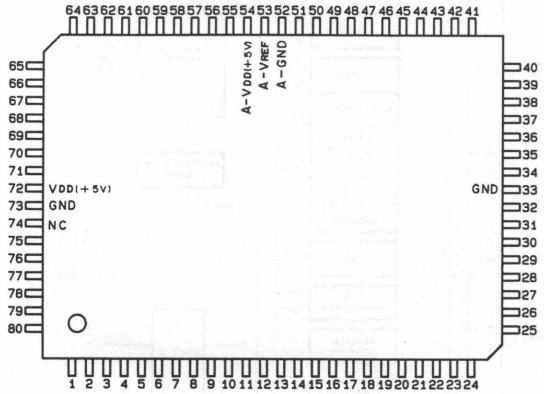
PA0 – PA3	: PORT A
PB0 – PB3	: PORT B
PE0 – PE3	: PORT E
PF0 – PF3	: PORT F
PI0 – PI3	: PORT I
PX0 – PX3	: PORT X
PY0 – PY3	: PORT Y
RST	: RESET



CXP80116-Q (SONY) FLAT PACKAGE

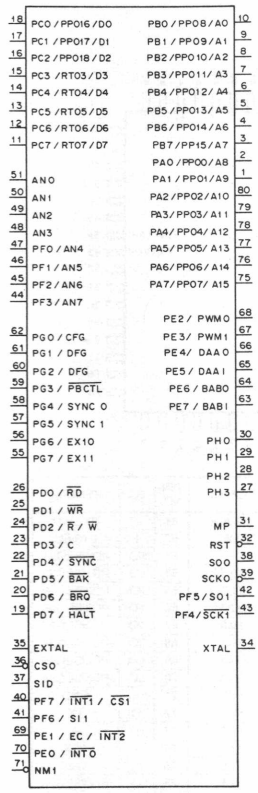
C-MOS 8-BIT MICROCOMPUTER

– TOP VIEW –



(V_{DD} = +5V)

PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL
1	O	PA1/PPO1/A9	41	I	PF6/SI1
2	O	PA0/PPO0/A8	42	I/O	PF5/SO1
3	O	PB7/PPO15/A7	43	I,I/O	PF4/$\overline{SCK1}$
4	O	PB6/PPO14/A6	44	I	PF3/AN7
5	O	PB5/PPO13/A5	45	I	PF2/AN6
6	O	PB4/PPO12/A4	46	I	PF1/AN5
7	O	PB3/PPO11/A3	47	I	PF0/AN4
8	O	PB2/PPO10/A2	48	I	AN3
9	O	PB1/PPO9/A1	49	I	AN2
10	O	PB0/PPO8/A0	50	I	AN1
11	I/O,O,I/O	PC7/RTO7/D7	51	I	AN0
12	I/O,O,I/O	PC6/RTO6/D6	52	–	A-GND
13	I/O,O,I/O	PC5/RTO5/D5	53	–	A-V_{REF}
14	I/O,O,I/O	PC4/RTO4/D4	54	–	A-V_{DD}
15	I/O,O,I/O	PC3/RTO3/D3	55	I	PG7/EXI1
16	I/O,O,I/O	PC2/PPO18/D2	56	I	PG6/EXI0
17	I/O,O,I/O	PC1/PPO17/D1	57	I	PG5/SYNC1
18	I/O,O,I/O	PC0/PPO16/D0	58	I	PG4/SYNC0
19	I/O,O	PD7/$\overline{HALT}$	59	I	PG3/$\overline{PBCTL}$
20	I/O,O	PD6/$\overline{BRQ}$	60	I	PG2/DPG
21	I/O,O	PD5/$\overline{BAK}$	61	I	PG1/DFG
22	I/O,O	PD4/$\overline{SYNC}$	62	I	PG0/CFG
23	I/O,O	PD3/C	63	O	PE7/DAB1
24	I/O,O	PD2/R/$\overline{W}$	64	O	PE6/DAB0
25	I/O,O	PD1/$\overline{WR}$	65	O	PE5/DAA1
26	I/O,O	PD0/$\overline{RD}$	66	O	PE4/DAA0
27	O	PH3	67	O	PE3/PWM1
28	O	PH2	68	O	PE2/PWM0
29	O	PH1	69	I	PE1/EC/$\overline{INT2}$
30	O	PH0	70	I	PE0/$\overline{INT0}$
31	I	MP	71	I	$\overline{NMI}$
32	I/O	RST	72	–	V_{DD}
33	–	GND	73	–	GND
34	O	XTAL	74	–	NC
35	I	EXTAL	75	O	PA7/PPO7/A15
36	I	CS0	76	O	PA6/PPO6/A14
37	I	SI0	77	O	PA5/PPO5/A13
38	O	SO0	78	O	PA4/PPO4/A12
39	I/O	SCK0	79	O	PA3/PPO3/A11
40	I	PF7/$\overline{INT1}$/$\overline{CS1}$	80	O	PA2/PPO2/A10



INPUT

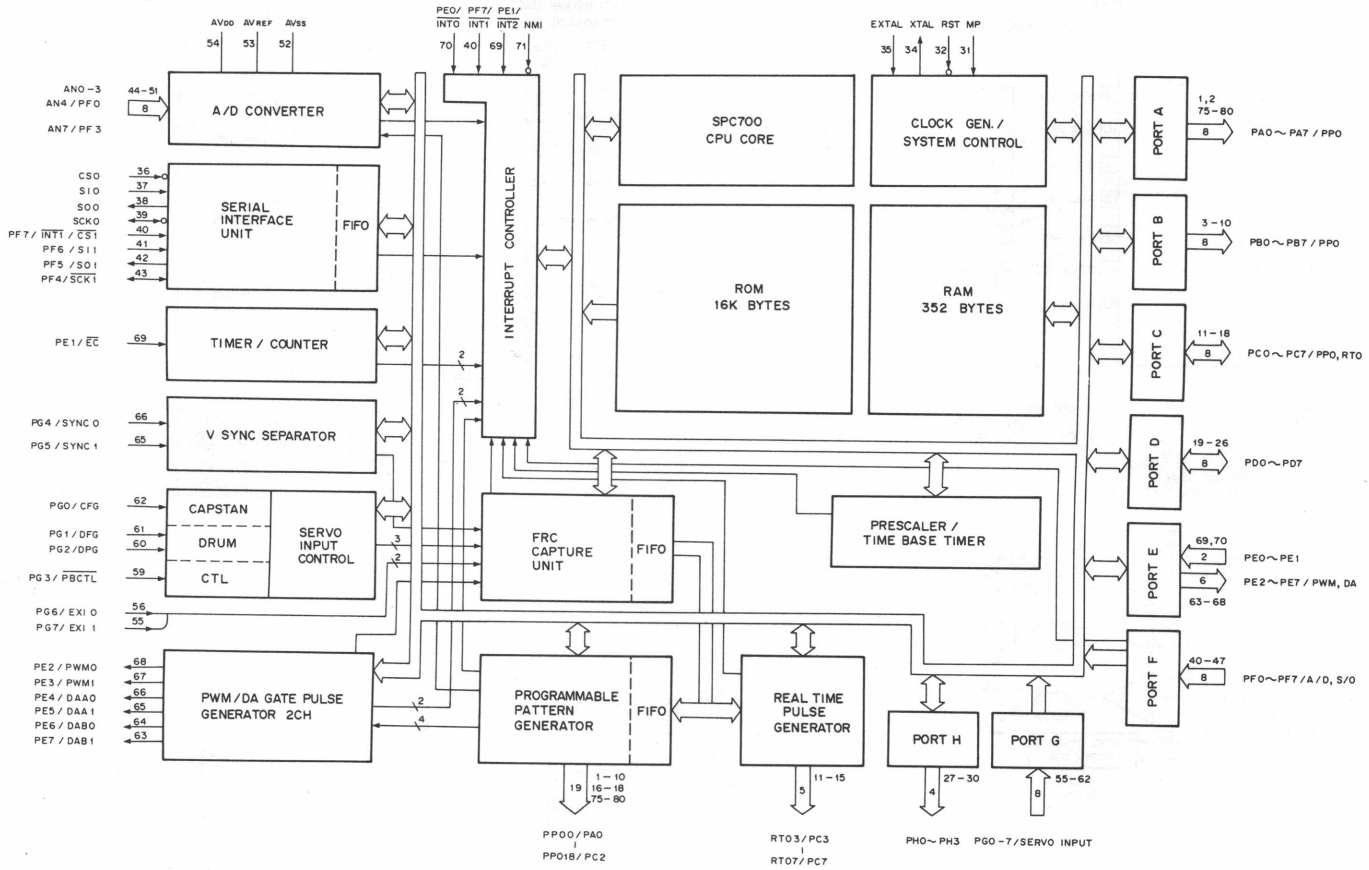
AN0 – AN7 : ANALOG INPUTS
BRQ : BUS REQUEST INPUT
CFG : CAPSTAN FG INPUT
CS0,1 : CHIP SELECT INPUTS
DFG : DRUM FG INPUT
DPG : DRUM PG INPUT
EC : EVENT INPUT
EXI0,1 : EXTERNAL INPUTS
EXTAL : SYSTEM CLOCK GENERATE JOINT
HALT : CPU STOP INPUT
INT0 – INT2 : EXTERNAL OFFERING INPUTS
MP : MICRO PROSESSOR MODE INPUT
NMI : NONMASKABLE OFFERING INPUT
PBCTL : PB CTL PULSE INPUT
PE0,1 : PORT E INPUTS
PF0 – PF7 : PORT F INPUTS
PG0 – PG7 : PORT G INPUTS
SI0,1 : SERIAL DATA INPUTS
SYNC0,1 : COMPOSITE SYNC INPUTS

OUTPUT

A0 – A15 : ADDRESS BUS OUTPUTS
BAK : BUS ACKNOWLEGE OUTPUT
C : TIMING SIGNAL OUTPUT
DAA0,1 : DA GATE PULSE OUTPUTS
DAB0,1 : DA GATE PULSE OUTPUTS
PA0 – PA7 : PORT A OUTPUTS
PB0 – PB7 : PORT B OUTPUTS
PE2 – PE7 : PORT E OUTPUTS
PH0 – PH3 : PORT H OUTPUTS
PPO0 – PPO18 : PROGRAMMABLE PATTERN GENERATOR OUTPUTS
PWM0,1 : PWM OUTPUTS
R/$\overline{W}$: CPU MACHINE SYCLE
RD : READ
RTO3 – RTO7 : REAL TIME PULSE OUTPUTS
SO0,1 : SERIAL DATA OUTPUTS
SYNC : SYNC
WR : WRITE
XTAL : SYSTEM CLOCK GENERATER OUTPUT

INPUT/OUTPUT

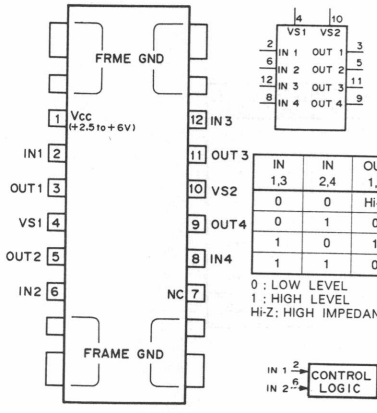
D0 – D7 : DATA BUS
PC0 – PC7 : PORT C
PD0 – PD7 : PORT D
RST : RESET
SCK0,1 : SERIAL CLOCK



LB1631M (SANYO) FLAT PACKAGE

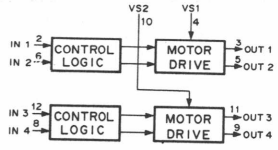
BI-DIRECTIONAL MOTOR DRIVER

– TOP VIEW –



IN 1,3	IN 2,4	OUT 1,3	OUT 2,4	MODE
0	0	Hi-Z	Hi-Z	NO OPERATION
0	1	0	1	REVERSE
1	0	1	0	FORWARD
1	1	0	0	BRAKE

0 : LOW LEVEL
1 : HIGH LEVEL
Hi-Z: HIGH IMPEDANCE

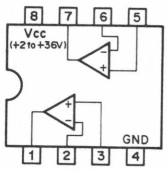


LM2903M (RAYTHEON) FLAT PACKAGE

uPC393G2 (NEC) FLAT PACKAGE

DUAL VOLTAGE COMPARATORS

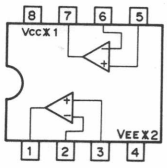
– TOP VIEW –



LM358M (MOTOROLA) FLAT PACKAGE

DUAL OPERATIONAL AMPLIFIERS

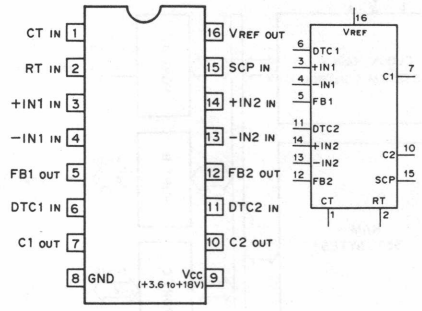
– TOP VIEW –



	Vcc*1	VEE*2
SINGLE SUPPLY	+3 to +32V	GND
SPLIT SUPPLIES	+1.5 to +16V	– 1.5 to – 16V

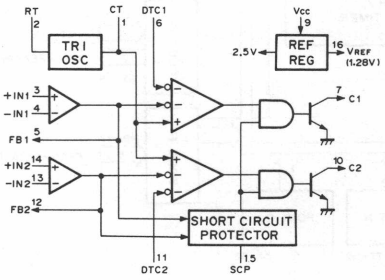
MB3775PF (FUJITSU) FLAT PACKAGE

DUAL PWM POWER CONTROLLER (DC-DC CONVERTER)
– TOP VIEW –



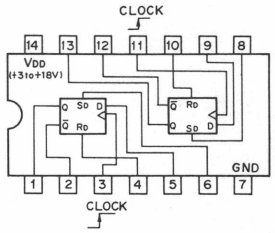
INPUT
+IN : ERROR AMP (+)
−IN : ERROR AMP (−)
CT : CONSTANT TIME
DTC : DEAD TIME CONTROL
RT : RESPONSE TIME
SCP : SHORT CIRCUIT PROTECT

OUTPUT
C : COLLECTOR
FB : FEEDBACK



MC14013BF (MOTOROLA) FLAT PACKAGE

C-MOS D-TYPE FLIP-FLOP WITH DIRECT SET/RESET
– TOP VIEW –



DIRECT R-S FLIP FLOP

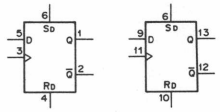
Sd	Rd	Q	$\overline{Q}$
0	0	Qn	$\overline{Qn}$
0	1	0	1
1	0	1	0
1	1	1	1

0; LOW LEVEL
1; HIGH LEVEL

D-TYPE FLIP FLOP

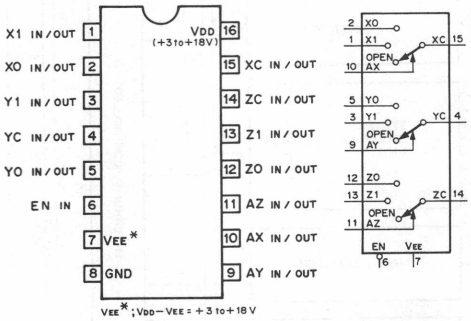
CKn	CKn+1
D	Q
0	0
1	1

CLOCK CK; ⌐ CKn; BEFORE CLOCK
CKn+1; AFTER CLOCK



MC14053BF (MOTOROLA) FLAT PACKAGE
uPD4053BG (NEC) FLAT PACKAGE

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER
– TOP VIEW –

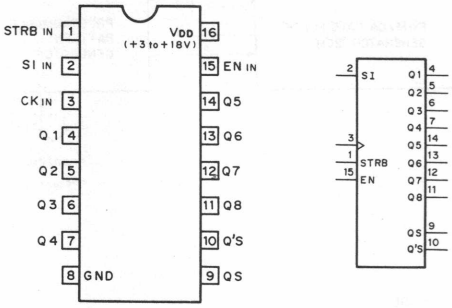


CONT. INPUTS		ON
EN	A (X,Y,Z,)	CHANNEL
0	0	0
0	1	1
1	X	OPEN

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE.

MC14094BF (MOTOROLA)

C-MOS 8-STAGE SHIFT-AND-STORE BUS REGISTER
– TOP VIEW –



SI; SERIAL DATA INPUT
CK; CLOCK INPUT
STRB; STROBE INPUT
EN; OUTPUT ENABLE INPUT
Q1~Q8; PARALLEL DATA OUTPUTS
QS, Q'S; SERIAL DATA OUTPUTS

INPUTS				PARALLEL OUT		SERIAL OUT	
CK	EN	STRB	SI	Q1	Qn	QS	Q'S
⌐↑	0	X	X	HI-Z	HI-Z	Q7	NC
↓	0	X	X	HI-Z	HI-Z	NC	Q7
⌐↑	1	0	X	NC	NC	Q7	NC
⌐↑	1	1	0	0	Qn-1	Q7	NC
⌐↑	1	1	1	1	Qn-1	Q7	NC
↓	1	1	1	NC	NC	NC	Q7

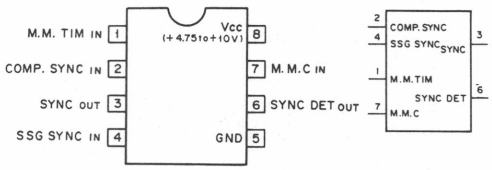
1; HIGH
0; LOW
X; DON'T CARE

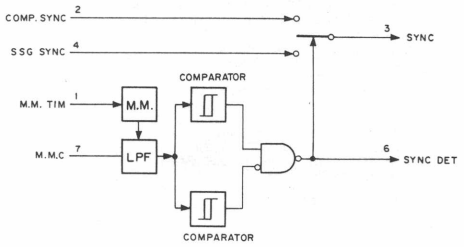
HI-Z; HIGH IMPEDANCE
NC ; NO CHANGE

NJM2230M (JRC) FLAT PACKAGE

VIDEO SIGNAL DETECTOR

– TOP VIEW –

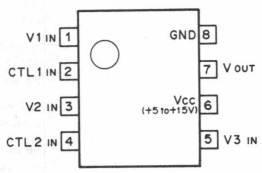


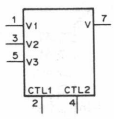


NJM2235M (JRC) FLAT PACKAGE

3-INPUT VIDEO SIGNAL SWITCH

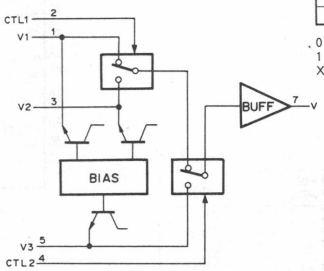
– TOP VIEW –





CTL1	CTL2	V
0	0	V1
1	0	V2
X	1	V3

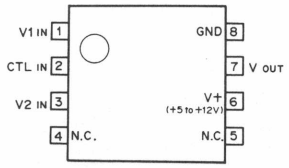
0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE

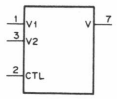


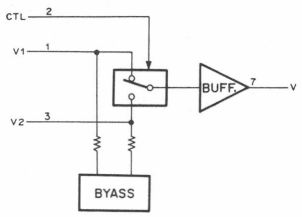
NJM2233AM (JRC) FLAT PACKAGE

2-INPUT SIGNAL VIDEO SWITCH

– TOP VIEW –







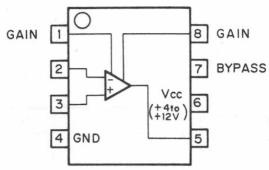
CTL	V
0	V1
1	V2

0 : LOW LEVEL
1 : HIGH LEVEL

NJM386M (JRC) FLAT PACKAGE

AUDIO POWER AMPLIFIER

– TOP VIEW –

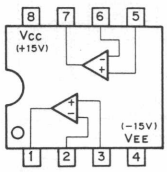


RC4558M (RAYTHEON) FLAT PACKAGE

uPC4558G2 (NEC) FLAT PACKAGE

OPERATIONAL AMPLIFIER

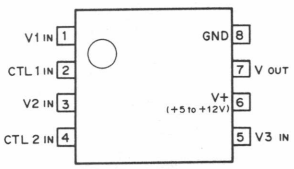
– TOP VIEW –

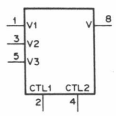


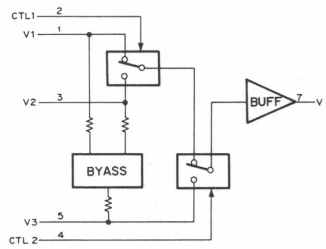
NJM2234M (JRC) FLAT PACKAGE

3-INPUT SIGNAL VIDEO SWITCH

– TOP VIEW –







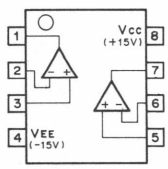
CTL1	CTL2	V
0	0	V1
1	0	V2
X	1	V3

0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE

RC4560M (RAYTHEON) FLAT PACKAGE

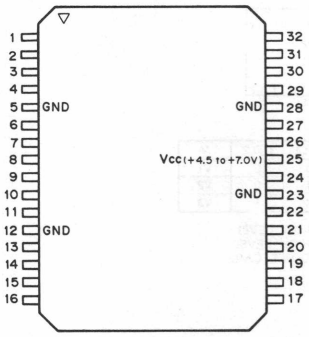
OPERATIONAL AMPLIFIER

– TOP VIEW –



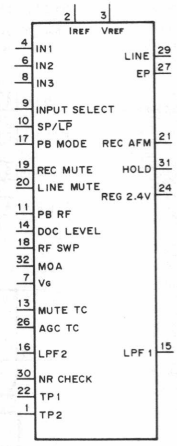
SBX1505-01 (SONY)

AFM AUDIO SIGNAL PROCESSOR FOR 8mm VTR
– TOP VIEW –



(VDD = + 4.5Vto + 7.0V)

PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGANL	PIN NO.	I/O	SYGNAL
1	I	TP2	12	–	GND	23	–	GND
2	I	IREF	13	I	MUTE TC	24	O	REG 4.2V
3	I	VREF	14	I	DOC LEVEL	25	–	Vcc
4	I	IN1	15	O	LPF1	26	I	AGC TC
5	–	GND	16	I	LPF2	27	O	EP
6	I	IN2	17	I	PB MODE	28	–	GND
7	I	VG	18	I	RF SWP	29	O	LINE
8	I	IN3	19	I	REC MUTE	30	I	NR CHECK
9	I	INPUT SELECT	20	I	LINE MUTE	31	O	HOLD
10	I	SP/$\overline{LP}$	21	O	REC AFM	32	I	MOA
11	I	PB RF	22	I	TP1			

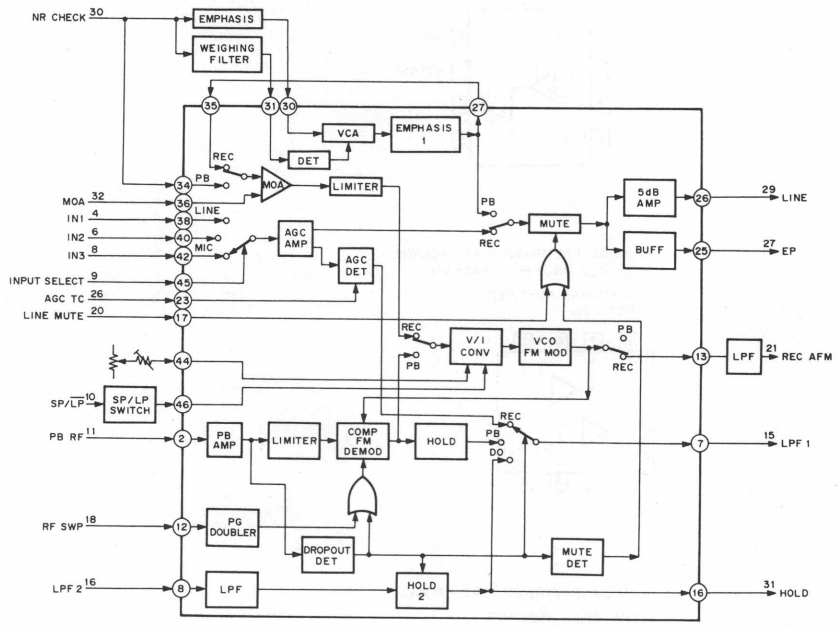


INPUT

AGC TC	; ATTACK AND RECOVERY TIME CONSTANT SIGNAL
DOC LEVEL	; DOC DETECT LEVEL CONTROL FOR TWICE SPEED TIME PB
IN1 – IN3	; AUDIO SIGNAL INPUT FROM LINE/TUNER/CAMERA
INPUT SELECT	; SELECT CONTROL SIGNAL (L : IN1/HiZ : IN2/H : IN3)
I REF	; REFERENCE CURRENT FOR NOIS REDUCTION DETECTOR
LINE MUTE	; MUTE CONTROL SIGNAL OF LINE/EP OUTPUT
LPF2	; LPF SIGNAL FOR DEMODULATOR OUTPUT
MOA	; SIGNAL INPUT FOR NR CIRCUIT
MUTE TC	; MUTING TIME CONSTANT SIGNAL FOR TWICE SPEED TIME PB
NR CHECK	; CHECK IC
PB MODE	; SWITCH CONTROL SIGNAL (H : PB/L : REC)
PB RF	; 40dB AMPLIFIER OF PB FM WAVE
REC MUTE	; SUSPEND MODULATING CONTROL SIGNAL
RF SWP	; TIMING PULSE FOR PRIOR LEVEL HOLD MODE
SP/$\overline{LP}$	; SWITCH CONTROL SIGNAL (H : SP/L : LP)
TP1, TP2	; CHECK IC
VG	; NEUTRAL POTENTIAL (REG 4.2V/2) MAXIMUM OUTPUT CURRENT + 1mA, – 200uA
VREF	; VCA REFERENCE VOLTAGE FOR NOISE REDUCTION AND AGC AMP

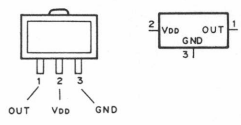
OUTPUT

EP	; EARPHONE AMPLIFIER SIGNAL
HOLD	; PRIOR LEVEL HOLD MODE SIGNAL
LINE	; LINE AMPLIFIER SIGNAL (– 5dB GAIN)
LPF1	; DEMODULATOR SIGNAL
REC AFM	; LPF SIGNAL
REG 4.2V	; 4.2V REGULATOR



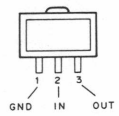
S-8054ALR-LN (SEIKO)

C-MOS VOLTAGE DETECTOR
– TOP VIEW –

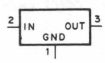


S-812 ? ? ? ?- ? ? (SEIKO) FLAT PACKAGE

THREE TERMINAL POSITIVE VOLTAGE REGULATOR
– TOP VIEW –



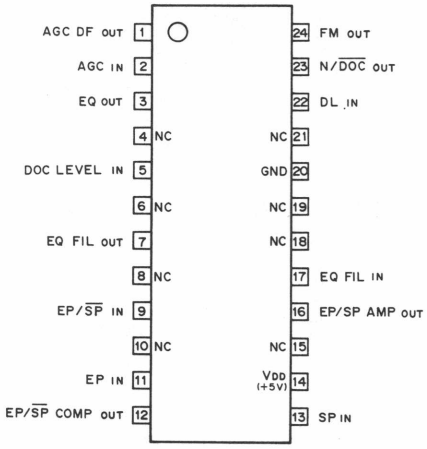
OUTPUT VOLTAGE	S-812????-??
+2.5V	S-81225AG-RH
+3.0V	S-81230AG-RB
+5.0V	S-81250HG-RD

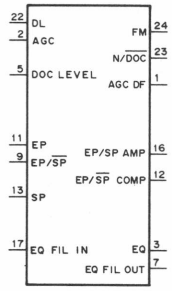


TA8607F (TOSHIBA) FLAT PACKAGE

C-MOS PB FM PROCESSOR FOR VTR

– TOP VIEW –



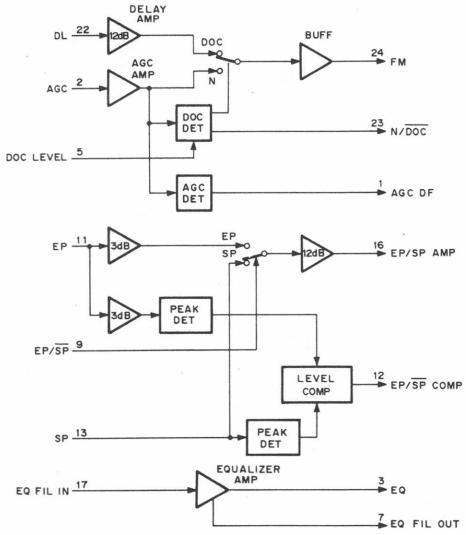


INPUT

AGC	; AGC AMP SIGNAL
DL	; 1H DELAY LEVEL SIGNAL
DOC	; DOC DETECT LEVEL ADJUSTMENT
EP	; EP INPUT SIGNAL
EP/$\overline{SP}$	; CONTROL SIGNAL (H : EP/L : SP)
EQ FIL IN	; EQUALIZER FILTER SIGNAL
SP	; SP INPUT SIGNAL

OUTPUT

AGC DF	; AGC DETECT FILTER SIGNAL
EP/$\overline{SP}$ AMP	; EP/SP 12dB AMPLIFIER SIGNAL
EP/SP COMP	; EP/SP LEVEL COMPARATE SIGNAL
EQ	; EQUALIZER AMP SIGNAL
EQ FIL OUT	; EQUALIZER FILTER SIGNAL
FM	; FM OUTPUT SIGNAL
N/$\overline{DOC}$	; DETECT SIGNAL (H : NORMAL/L : DOC)

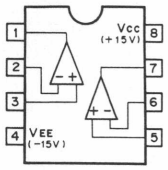


TL082CPS (TI) FLAT PACKAGE

OPERATIONAL AMPLIFIER

(J FET-INPUT)

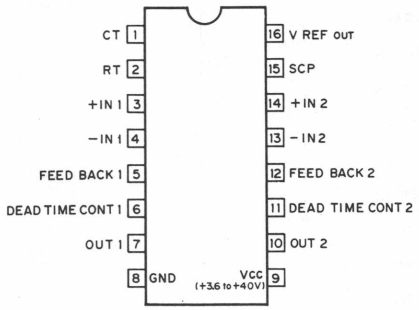
— TOP VIEW —

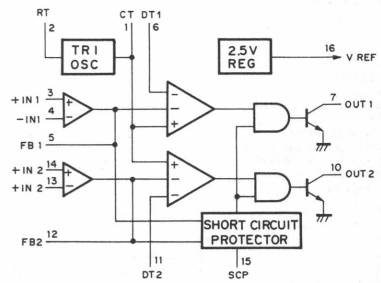


TL1451ACNS (TI) FLAT PACKAGE

DUAL PWM POWER CONTROLLER

— TOP VIEW —

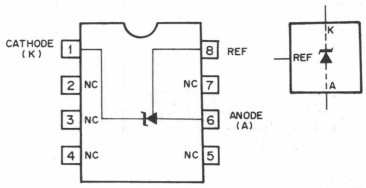




TL431CPS (TI) FLAT PACKAGE

ADJUSTABLE PRECISION SHUNT REGULATOR

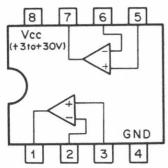
– TOP VIEW –



uPC358G2 (NEC) FLAT PACKAGE

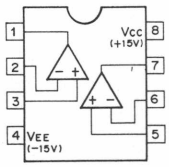
DUAL OPERATIONAL AMPLIFIERS

— TOP VIEW —



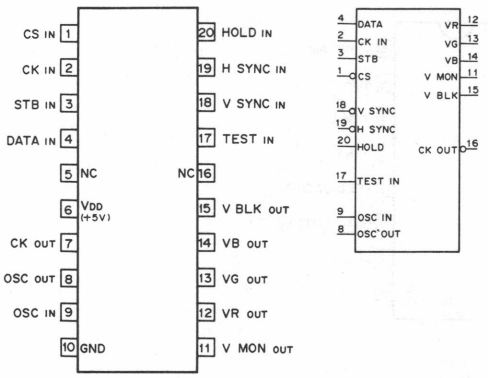
uPC4572G2 (NEC) FLAT PACKAGE

OPERATIONAL AMPLIFIER (WIDE BAND, LOW NOISE)
– TOP VIEW –

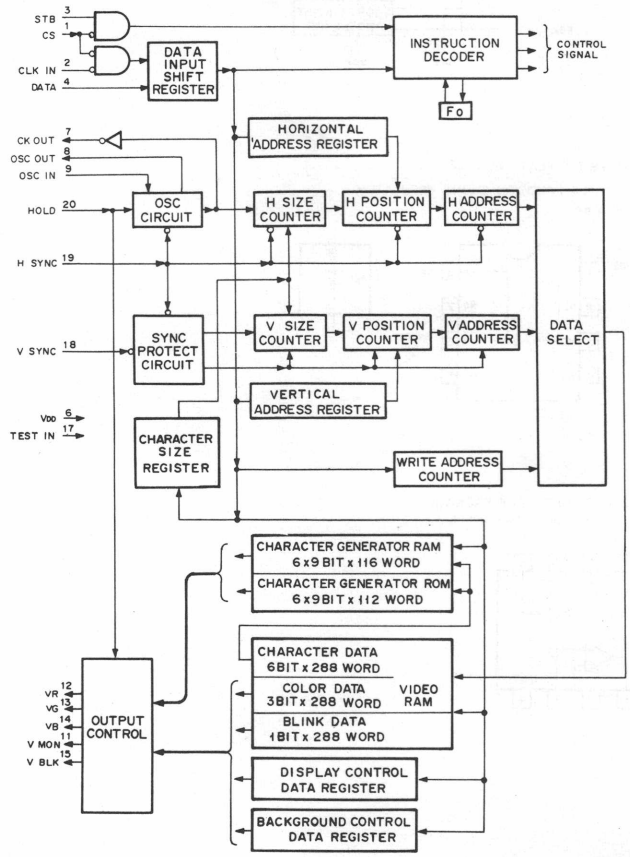


uPD6145G (NEC) FLAT PACKAGE

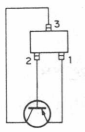
C-MOS CHARACTER DISPLAY
– TOP VIEW –



CK : CLOCK
CS : CHIP SELECT
DATA : SERIAL DATA
H SYNC : HORIZONTAL SYNC SIGNAL
STB : STROBE
TEST IN : TEST CLOCK INPUT
V BLK : V BLANKING SIGNAL
V MON : WORD SIGNAL MONITOR
V SYNC : VERTICAL SYNC SIGNAL
VR, VG, VB : WORD SIGNAL



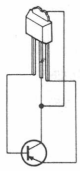
(SCALE 4/1)
TOP VIEW



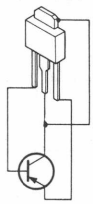
2SA1122
2SA1226
2SA1576
2SA1611
2SA812
2SB624

TYPE NO. PRINTED

2SA1175

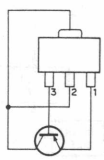


2SA1242



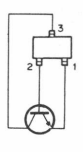
2SB1040A

(SCALE 4/1)
TOP VIEW



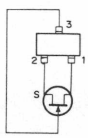
2SB1121
2SB1123

(SCALE 4/1)
TOP VIEW



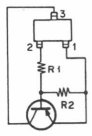
2SC1623
2SC2223
2SC2712
2SC2712Y
2SC2715
2SC3326N
2SC3356
2SC4081
2SC4175
2SC4177

TOP VIEW (SCALE 4/1)

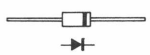


2SK94

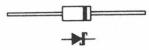
TOP VIEW (SCALE 4/1)



DTA114EK (R1 = 10K, R2 = 10K)
DTA124EU (R1 = 22K, R2 = 22K)
DTA143EU (R1 = 4.7K, R2 = 4.7K)
DTA144EK (R1 = 47K, R2 = 47K)
DTA144EU (R1 = 47K, R2 = 47K)

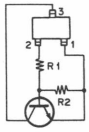


1SS119



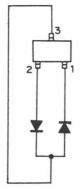
ERA81-004
ERB81-004

TOP VIEW (SCALE 4/1)



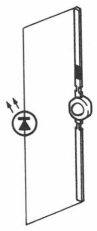
DTC114EU (R1 = 10K, R2 = 10K)
DTC114YK (R1 = 10K, R2 = 47K)
DTC124EU (R1 = 22K, R2 = 22K)
DTC124XK (R1 = 22K, R2 = 47K)
DTC144EK (R1 = 47K, R2 = 47K)
DTC144EU (R1 = 47K, R2 = 47K)

(SCALE 4/1)
TOP VIEW



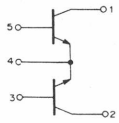
1SS123

(SCALE 2/1)



GL-1HD1 ; RED

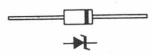
(SCALE 6/1)
TOP VIEW



FMW1

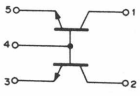
(SCALE 4/1)
TOP VIEW

1SS196



RD ? ?ESL ?

(SCALE 6/1)
TOP VIEW



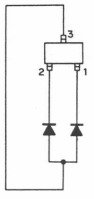
FMW2

1T32-8

(SCALE 4/1)
TOP VIEW

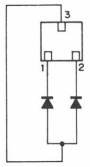
RD ? ?M-B

(SCALE 4/1)
TOP VIEW



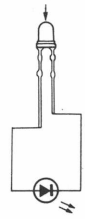
1S2835
1SS303

TOP VIEW (SCALE 4/1)



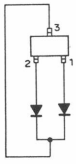
DAP202

RADIATION SIDE

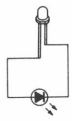


SLH-34YT3 ; YELLOW

(SCALE 4/1)
TOP VIEW



1S2837
1SS304



EBR3402S ; RED
TLUR164 ; RED

(SCALE 4/1)
TOP VIEW

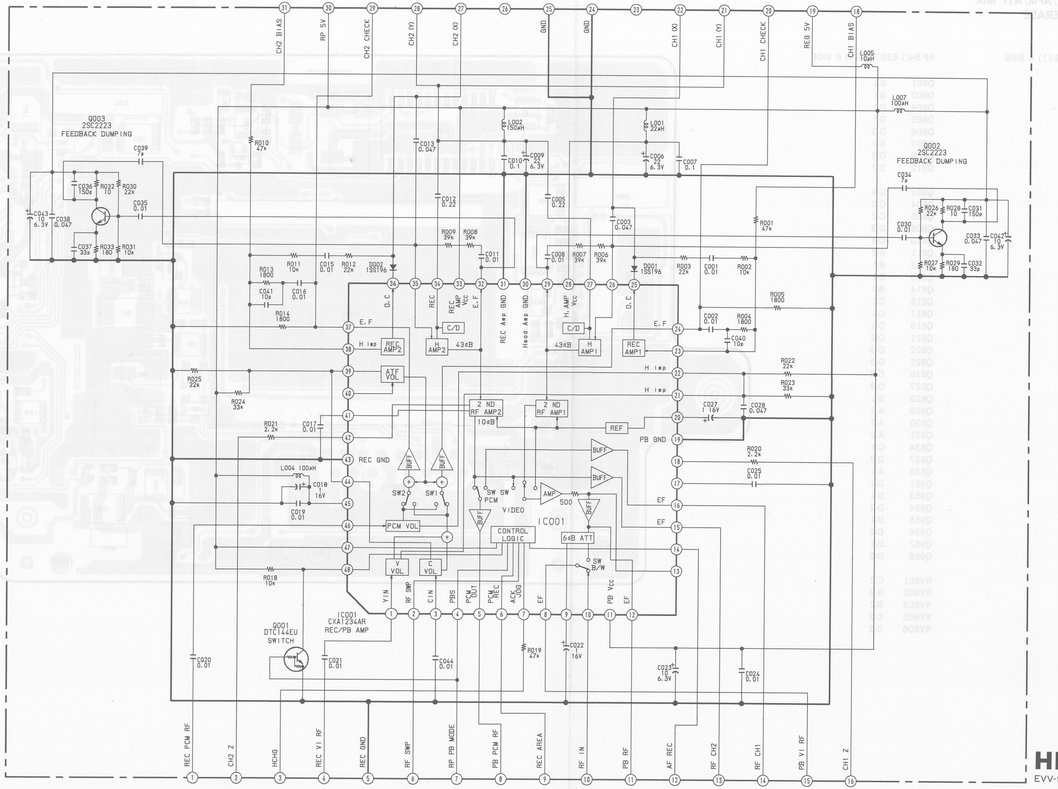
SB05-05CP

PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

CIRCUIT FUNCTION OF THE PRINTED CIRCUIT BOARDS

SYSTEM	BOARD	CIRCUIT FUNCTION
VIDEO	RP-54	HEAD AMP, REC Y/C/AFM/ ATF MIX
	HR-3	REC/PB HEAD AMP
	VO-28	Y PROCESS
	VO-29	CHROMA PROCESS
	HD-8	COMB FILTER
	CC-43	CAMERA CONNECTOR
	VA-102	Y/C MIX
AUDIO	VA-96	XLR INPUT AMP
	FP-37	AUDIO INPUT/OUTPUT AMP
	AU-136	PCM AUDIO PROCESS, AFM SIGNAL PROCESS
	HP-49	EARPHONE JACK
TIME CODE	FP-37	TIME CODE PROCESS
SYSCON SERVO	AU-136	ATF SERVO
	SS-43	SERVO SYSTEM, MECHANISM CONTROL
	SY-153	SYSTEM CONTROL
	KY-191	FUNCTION KEY BOARD
	FP-89	MODE SW, TAPE END SENSOR
	FP-90	TAPE SELECT SW, TAPE TOP SENSOR
	CP-147	BACK TALLY
POWER	PS-209	DC-DC CONVERTER
Others	CP-146	CONNECTOR PANEL
	CC-44	TERMINAL

HR-3; REC/PB HEAD AMPLIFIER



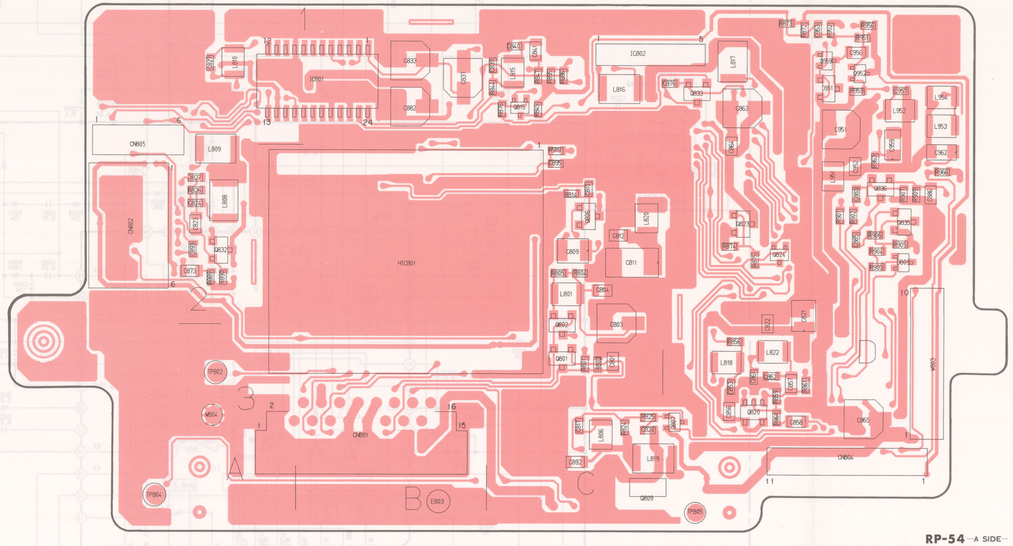
RP-54 ; HEAD AMPLIFIER
REC Y/C/AFM/ATF MIX
FLYING ERASE

RP-54(1-633-779-11) A SIDE

CN801	B-3
CN802	A-2
CN803	D-3
CN804	D-3
CN805	A-1
D809	D-2
D951	D-1
IC801	A-1
IC802	C-1
Q801	C-3
Q802	C-3
Q806	C-2
Q807	D-3
Q809	C-3
Q815	C-1
Q820	D-3
Q823	D-2
Q824	D-2
Q832	A-2
Q833	D-1
Q835	D-2
Q836	D-2
Q952	D-1
Q959	D-1
TP802	A-3
TP804	A-3
TP805	D-3

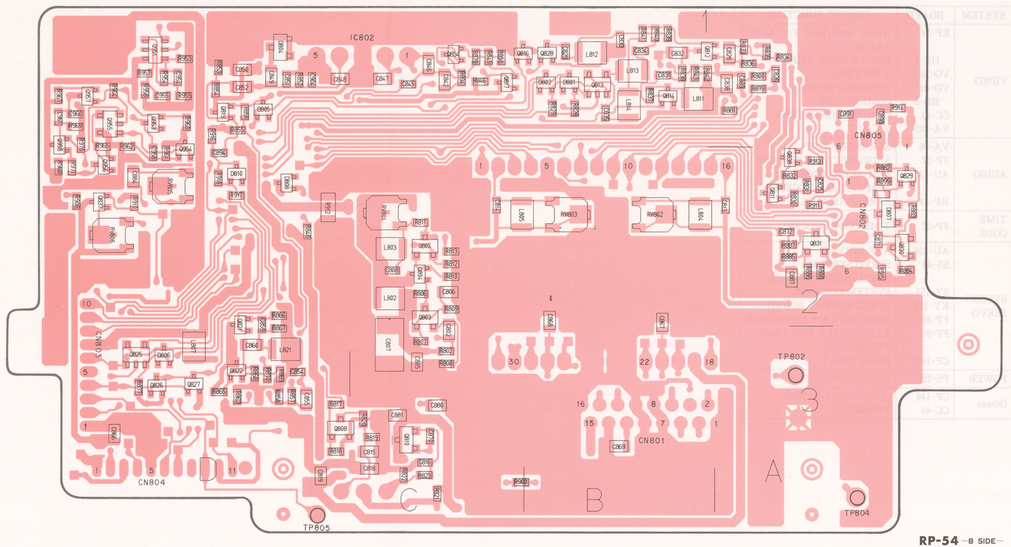
RP-54(1-633-779-11) B SIDE

D801	B-1
D802	B-1
D804	D-1
D805	D-1
D806	D-3
D807	A-2
D808	D-2
D810	D-2
Q803	C-3
Q804	C-2
Q805	C-2
Q808	D-3
Q810	C-3
Q811	A-2
Q812	B-1
Q813	B-1
Q814	B-1
Q816	C-1
Q817	C-1
Q819	D-1
Q821	D-2
Q822	D-3
Q825	D-3
Q826	D-3
Q827	D-3
Q828	B-1
Q829	A-2
Q830	A-2
Q831	A-2
Q834	C-1
Q837	D-2
Q838	A-1
Q951	D-1
Q953	D-1
Q954	D-2
Q955	D-1
Q956	D-2
Q957	D-1
Q958	D-2
RV801	C-2
RV802	B-2
RV803	B-2
RV805	D-2
RV806	D-2



A Side is the same as COMPONENT Side

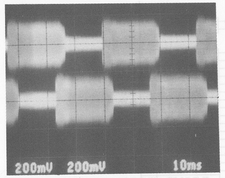
RP-54 RP-54



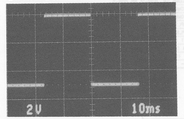
B Side is the same as SOLDER Side

RP-54 ; HEAD AMPLIFIER
REC Y/C/AFM/ATF MIX
FLYING ERASE

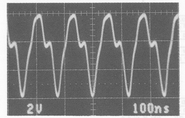
① CH-1 : CN802-3pin PB mode
CH-2 : CN802-4pin



② CN802-2pin PB mode

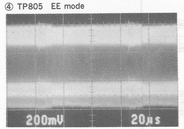


③ TP804 REC mode



8.06MHz

④ TP805 EE mode



Measurement Condition
- Input Signal : DXC-325 Test Color Bars
- Cassette Tape : EE mode ···E6-20HIME
PB mode ···Alignment Tape
WR5-8NSE

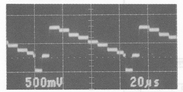
RP-54 RP-54

RP-54
1-633-779-11(1)
EVV-9000

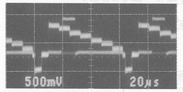
VO-28(1/2) VO-28(1/2)

VO-28(1/2); Y PROCESS

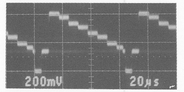
① TP402 EE mode



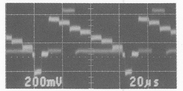
PB mode



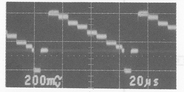
② TP401 EE mode



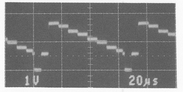
③ CN408-13pin PB mode



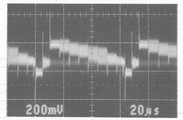
④ CN408-9pin EE mode



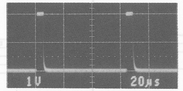
⑤ IC410-16pin EE mode



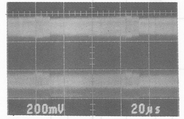
⑥ IC409-17pin EE mode



⑦ CN408-15pin EE mode

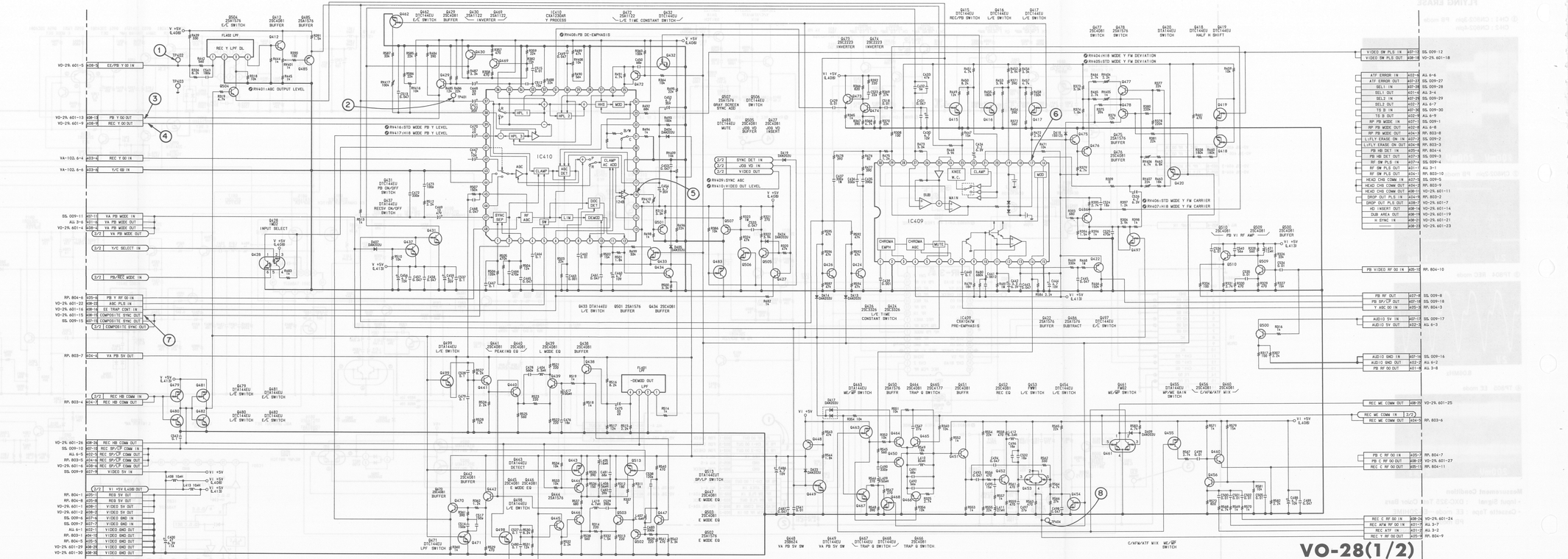


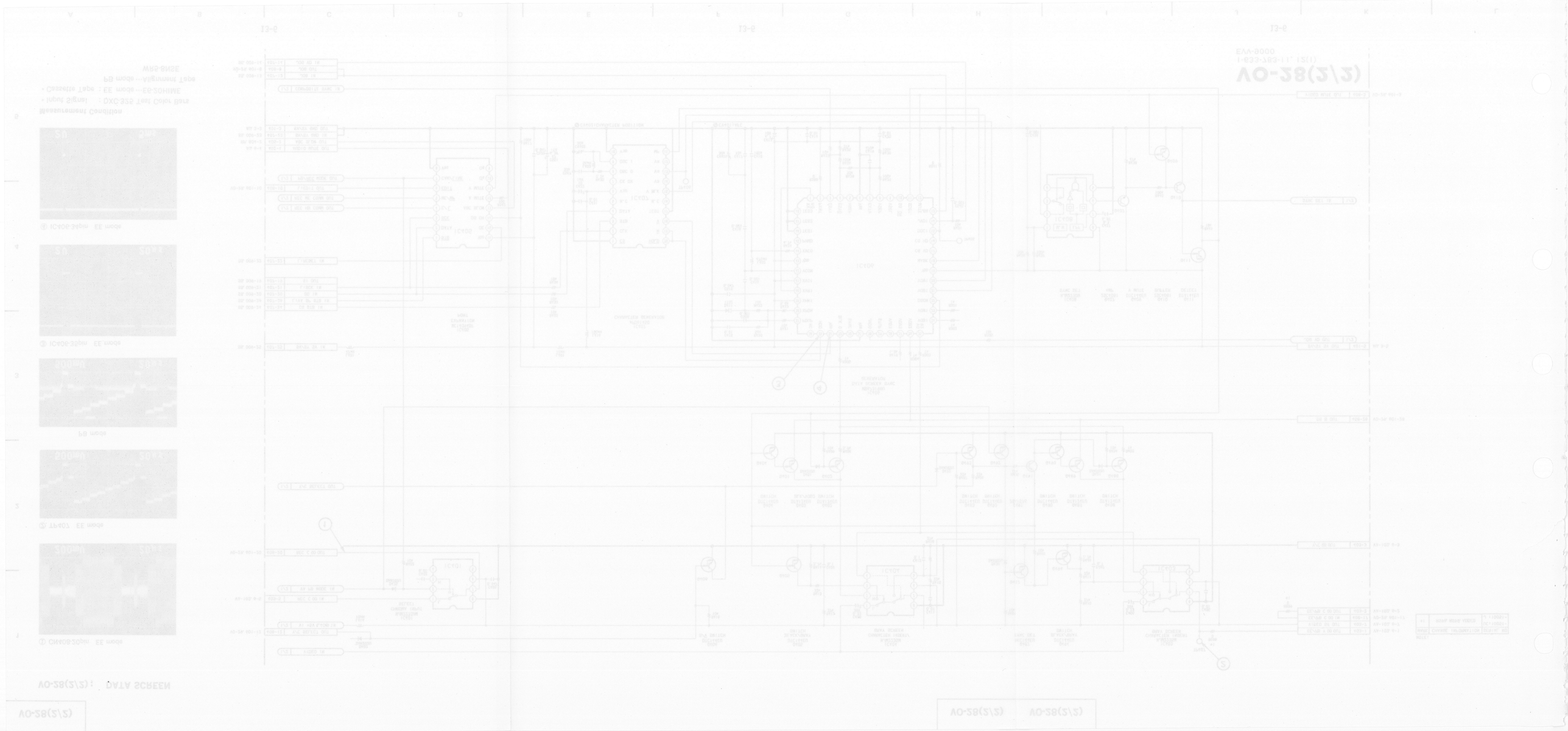
⑧ TP404 EE mode



Measurement Condition

- Input Signal : DXC-325 Test Color Bars
- Cassette Tape : EE mode···E6-20HIME
  PB mode···Alignment Tape
  WR5-8NSE

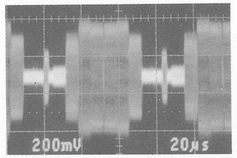

IC410
IC409
RV408:PB DE-EMPHASIS
RV416:STD MODE PB Y LEVEL
RV417:HiB MODE PB Y LEVEL
RV401:ABC OUTPUT LEVEL
RV409:SYNC ABC
RV410:VIDEO OUT LEVEL
RV404:HiB MODE Y FM DEVIATION
RV405:STD MODE Y FM DEVIATION
RV406:STD MODE Y FM CARRIER
RV407:HiB MODE Y FM CARRIER
VO-29, 601-5 EE/PB Y DO IN
VO-29, 601-13 PB Y DO OUT
VO-29, 601-9 REC Y DO OUT
VA-102, 6-4 REC Y DO IN
VA-102, 6-6 Y/C EQ IN
SS, 009-11 VA PB MODE IN
AU, 3-6 VA PB MODE OUT
VO-29, 601-4 VA PB MODE OUT
VA PB MODE OUT
Y/C SELECT IN
PB/REC MODE IN
RP, 804-4 PB Y RF DO IN
VO-29, 601-22 ABC PLS IN
VO-29, 601-16 EE TRAP CONT IN
VO-29, 601-15 COMPOSITE SYNC OUT
SS, 009-15 COMPOSITE SYNC OUT
COMPOSITE SYNC OUT
RP, 803-7 VA PB SV OUT
REC HiB COMM IN
RP, 803-4 REC HiB COMM OUT
VO-29, 601-26 REC HiB COMM OUT
SS, 009-10 REC SP/LP COMM IN
AU, 6-5 REC SP/LP COMM OUT
RP, 803-5 REC SP/LP COMM OUT
VO-29, 601-6 REC SP/LP COMM OUT
SS, 009-9 VIDEO SV IN
VI +5V
VI +5V IL408D OUT
RP, 804-1 REG 5V OUT
RP, 804-8 REG 5V OUT
VO-29, 601-1 V.OUT 5V OUT
VO-29, 601-2 V.OUT 5V OUT
SS, 009-8 V.OUT GND IN
SS, 009-7 V.OUT GND IN
AU, 6-1 V.OUT GND OUT
RP, 803-1 V.OUT GND OUT
RP, 804-5 V.OUT GND OUT
VO-29, 601-29 V.OUT GND OUT
VO-29, 601-30 V.OUT GND OUT
SYNC DET IN
JOG VD IN
VIDEO OUT
VIDEO SW PLS IN
VIDEO SW PLS OUT
ATF ERROR IN
ATF ERROR OUT
SEL1 IN
SEL1 OUT
SEL2 IN
SEL2 OUT
TS B IN
TS B OUT
RP PB MODE IN
RP PB MODE OUT
RP PB MODE OUT
LIFLY ERASE ON IN
LIFLY ERASE ON OUT
PB HB DET IN
PB HB DET OUT
RF SW PLS IN
RF SW PLS OUT
RF SW PLS OUT
HEAD CHG COMM IN
HEAD CHG COMM OUT
HEAD CHG COMM OUT
DROP OUT PLS IN
DROP OUT PLS OUT
H/2 INSERT OUT
DUB AREA OUT
H SYNC IN
PB VI RF AMP
PB VIDEO RF DO IN
PB RF OUT
PB SP/LP OUT
Y ABC DO IN
AUDIO 5V IN
AUDIO 5V OUT
AUDIO GND IN
AUDIO GND OUT
PB RF DO OUT
REC WE COMM OUT
REC WE COMM IN
REC WE COMM OUT
PB C RF DO IN
PB C RF DO OUT
REC C RF DO OUT
REC C RF DO IN
REC AFM RF DO IN
REC ATF IN
REC Y RF DO OUT
C/AFM/ATF MIX
WE/WF SWITCH
WE/WF SWITCH
WP/WE GAIN SWITCH
REC EQ
PRE-EMPHASIS
SUBTRACT
CHROMA EMPH
CHROMA ABC
MUTE
KNEE W.C.
CLAMP
SUB
GRAY SCREEN SYNC ADD
SYNC ADD
VIDEO SWITCH
MUTE
SYNC DET
ABC
ABC DET
CLAMP
AC ADD
DOC
DOC DET
RF ABC
SW P
L/M
DEMOD
SYNC DEP
INPUT SELECT
PEAK/HiD EQ
L MODE EQ
~DEMOD OUT
LPF
LPF SWITCH
E MODE EQ
TRAP Q SWITCH
TRAP Q SWITCH
VA PB SV SW
VA PB SV SW
CONSTANT SWITCH
Y PROCESS
L/E TIME CONSTANT SWITCH
FLAGE LPF
REC Y LPF DL
INVERTER
BUFFER
SWITCH
L/E SWITCH
REC/PB SWITCH
HALF H SHIFT
MUTE
SUBTRACT
HPL 1
HPL 2
HPL 3
MOD
B/W
BPF
NOTCH
LPF
DEMOD
REC EQ
REC/PB DE-EMPHASIS
REC/PB SWITCH
REC/PB SWITCH
REC/PB SWITCH



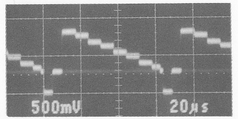
VO-28(2/2) VO-28(2/2)

VO-28(2/2); DATA SCREEN

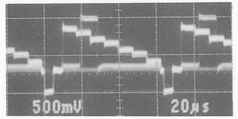
① CN408-20pin EE mode



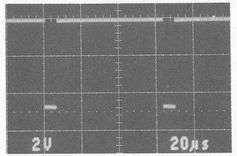
② TP407 EE mode



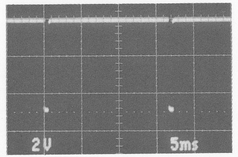
PB mode



③ IC406-35pin EE mode

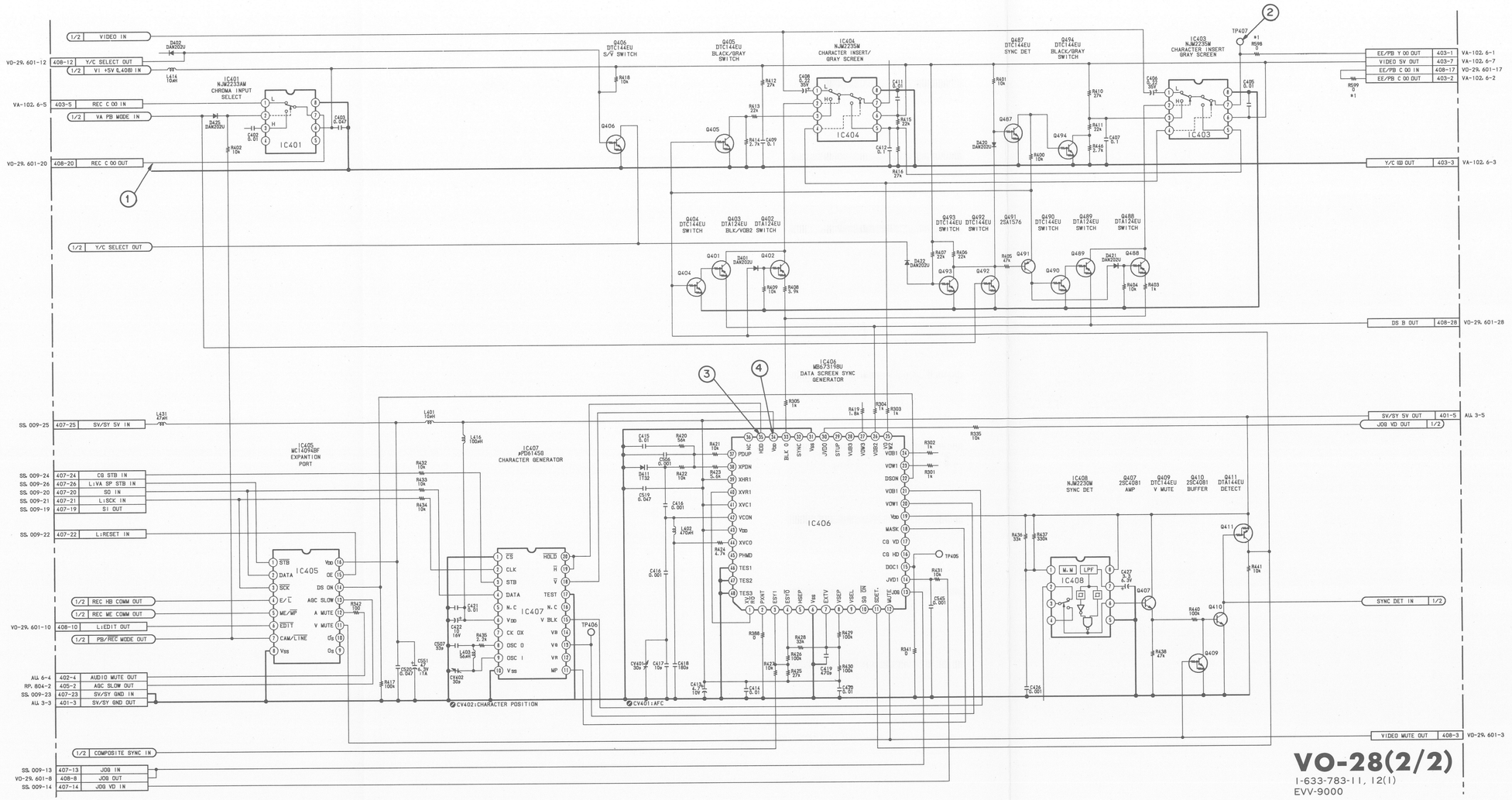


④ IC406-34pin EE mode



Measurement Condition

- Input Signal : DXC-325 Test Color Bars
- Cassette Tape : EE mode…E6-20HIME
  PB mode…Alignment Tape
  WR5-8NSE



NOTE:

MARK	CHANGE INFORMATION	SERIAL NO
*1	R598, R599, ADDED	UC:1100S1- J :1100S1-

VO-28(2/2)

I-633-783-11, 12(1)
EVV-9000

13-6

13-6

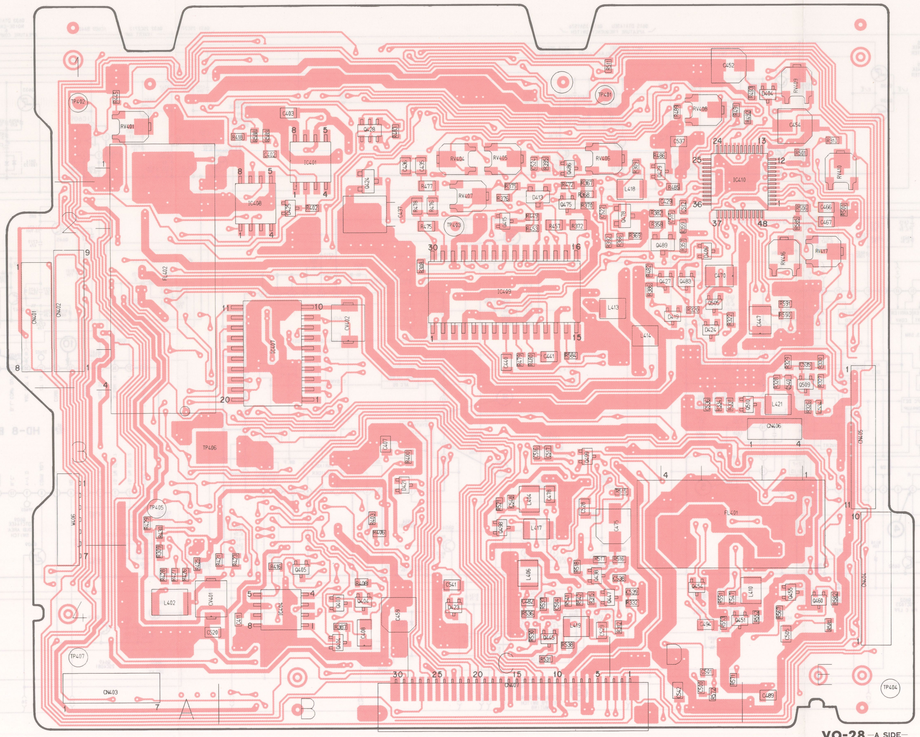
VO-28 ; Y PROCESS DATA SCREEN

VO-28(1-633-783-11,12) A SIDE

CN401	A-2	RV407	B-2
CN402	A-2	RV408	D-1
CN403	A-4	RV409	E-1
CN404	E-4	RV410	E-1
CN405	E-3	RV416	E-2
CN407	C-4	RV417	E-2
CV401	A-4	TP401	C-1
CV402	B-2	TP402	A-1
		TP403	C-2
D404	E-1	TP404	E-4
D418	C-1	TP405	A-3
D419	D-2	TP407	A-4
D421	B-3		
D423	C-4		
D424	D-2		
D425	B-2		
FL401	D-3		
FL402	A-2		
IC401	B-1		
IC404	B-4		
IC407	B-2		
IC408	B-2		
IC409	C-2		
IC410	E-2		
Q403	B-4		
Q404	B-4		
Q405	B-4		
Q415	C-2		
Q424	B-1		
Q427	D-2		
Q428	B-1		
Q429	D-1		
Q438	C-4		
Q445	C-4		
Q447	D-4		
Q451	E-4		
Q454	D-4		
Q455	E-4		
Q460	E-4		
Q469	D-2		
Q473	D-2		
Q475	D-2		
Q483	D-2		
Q486	C-1		
Q498	C-3		
Q499	C-3		
Q505	D-2		
Q509	E-2		
Q510	E-3		
RV401	A-1		
RV404	C-1		
RV405	C-1		
RV406	C-1		

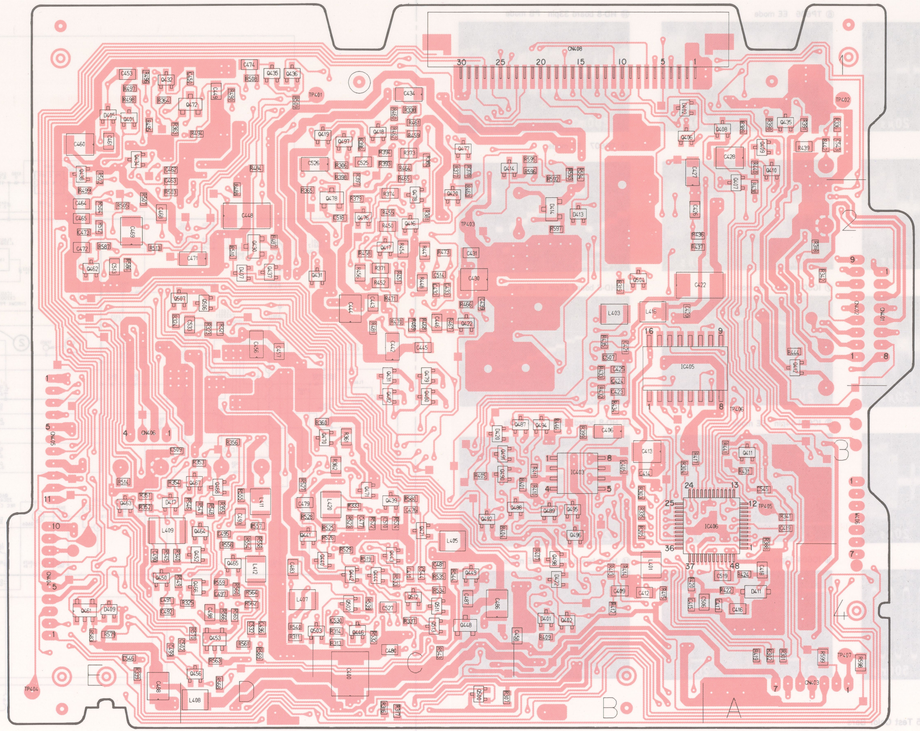
VO-28(1-633-783-11,12) B SIDE

CN408	B-1	Q468	D-3
		Q470	D-3
D401	B-4	Q471	C-3
D402	B-1	Q472	D-1
D405	E-1	Q474	D-2
D407	D-2	Q476	C-2
D409	E-4	Q477	C-1
D411	A-4	Q478	C-2
D413	B-2	Q479	C-2
D414	C-1	Q480	C-3
D417	E-3	Q481	C-3
D420	C-3	Q482	C-3
D422	B-4	Q485	A-1
		Q487	B-3
IC403	B-3	Q488	C-3
IC405	A-2	Q489	B-3
IC406	A-3	Q490	C-3
		Q491	C-3
Q402	B-4	Q492	C-3
Q406	B-1	Q493	B-4
Q407	A-2	Q494	B-3
Q409	A-1	Q497	C-1
Q410	A-1	Q500	C-4
Q411	A-3	Q501	E-1
Q412	A-3	Q502	C-4
Q416	C-2	Q503	D-4
Q417	C-2	Q504	B-2
Q418	C-1	Q506	D-2
Q419	D-1	Q507	D-2
Q420	C-1	Q513	C-4
Q422	D-2		
Q426	B-2		
Q430	D-2		
Q431	D-2		
Q432	D-1		
Q433	E-1		
Q434	D-1		
Q437	D-2		
Q439	C-3		
Q440	C-4		
Q441	D-3		
Q442	C-4		
Q443	C-3		
Q444	C-4		
Q446	C-4		
Q448	C-4		
Q449	C-4		
Q450	E-4		
Q452	D-4		
Q453	D-4		
Q456	D-4		
Q461	E-4		
Q462	E-2		
Q463	E-3		
Q464	D-3		
Q465	D-4		
Q466	D-4		
Q467	D-3		



A Side is the same as COMPONENT Side

VO-28 — A SIDE —
1-633-783-11, 12(1)
EVV-9000



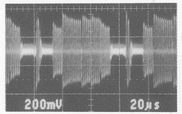
B Side is the same as SOLDER Side

VO-28 — B SIDE —
1-633-783-11, 12(1)
EVV-9000

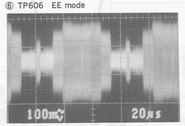
VO-29 VO-29

VO-29 ; CHROMA PROCESS

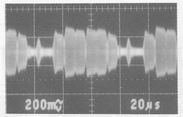
① TP605 EE mode



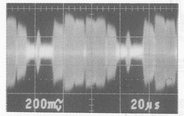
⑥ TP606 EE mode



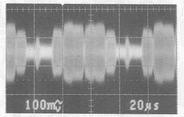
⑩ HD-8 board 33pin PB mode



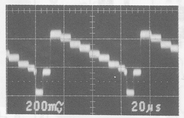
② IC602-38pin PB mode



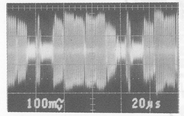
PB mode



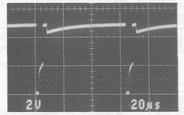
⑪ TP607 EE mode



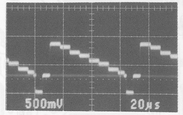
③ IC602-1pin PB mode



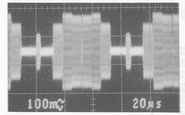
⑦ IC604-46pin EE mode



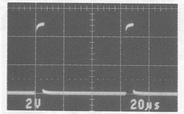
⑫ HD-8 board 26pin EE mode



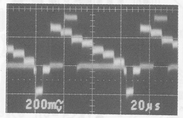
④ IC602-3pin EE mode



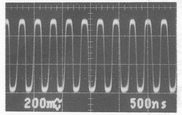
⑧ IC604-44pin EE mode



⑬ HD-8 board 23pin PB mode

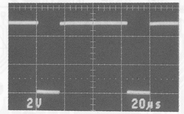


⑤ TP601 PB mode

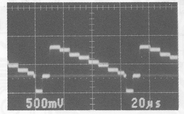


3.58MHz

⑨ IC604-33pin EE mode



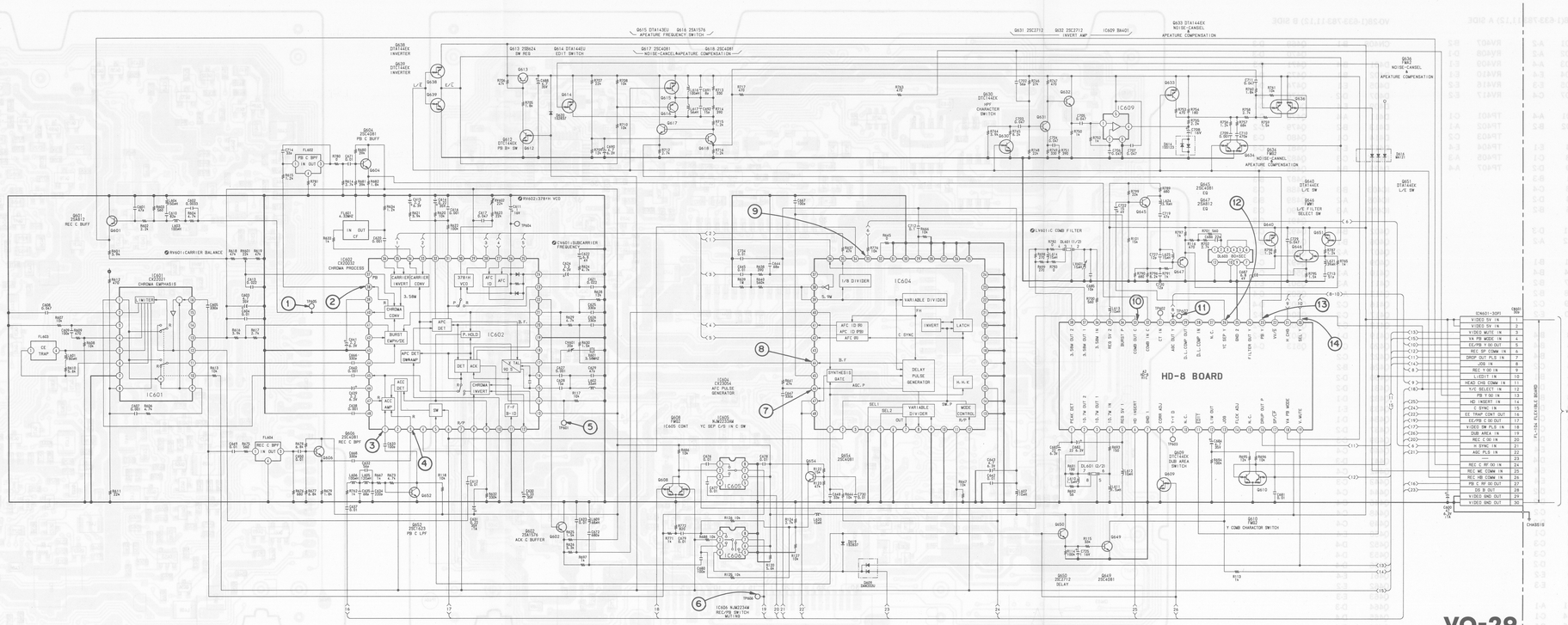
⑭ HD-8 board 20pin EE mode



Measurement Condition

- Input Signal ; DXC-325 Test Color Bars
- Cassette Tape ; EE mode ···E6-20HIME
  PB mode ···Alignment Tape
  WR5-8NSE

13-8



13-8

13-8

VO-29
1-633-784-11(1)
EVV-9000

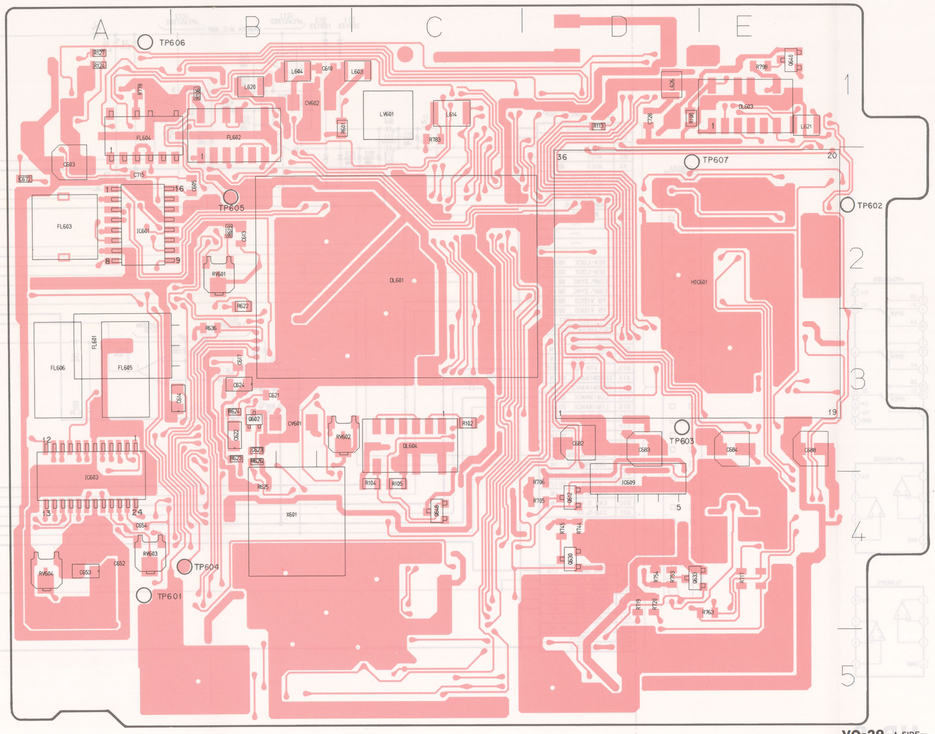
VO-29 ; CHROMA PROCESS

VO-29(1-633-784-11) A SIDE

CV601	B-3
DL601	C-2
DL603	E-1
FL601	B-3
FL602	B-2
FL603	A-2
FL604	A-1
HD-8 BOARD	D-1
IC601	A-2
IC609	D-4
LV601	C-1
Q602	B-3
Q612	D-4
Q630	D-4
Q633	D-4
Q640	E-1
RV601	B-2
RV602	B-3
TP601	A-4
TP602	E-2
TP603	A-3
TP604	B-4
TP605	B-2
TP606	A-1
TP607	D-2
X601	B-4

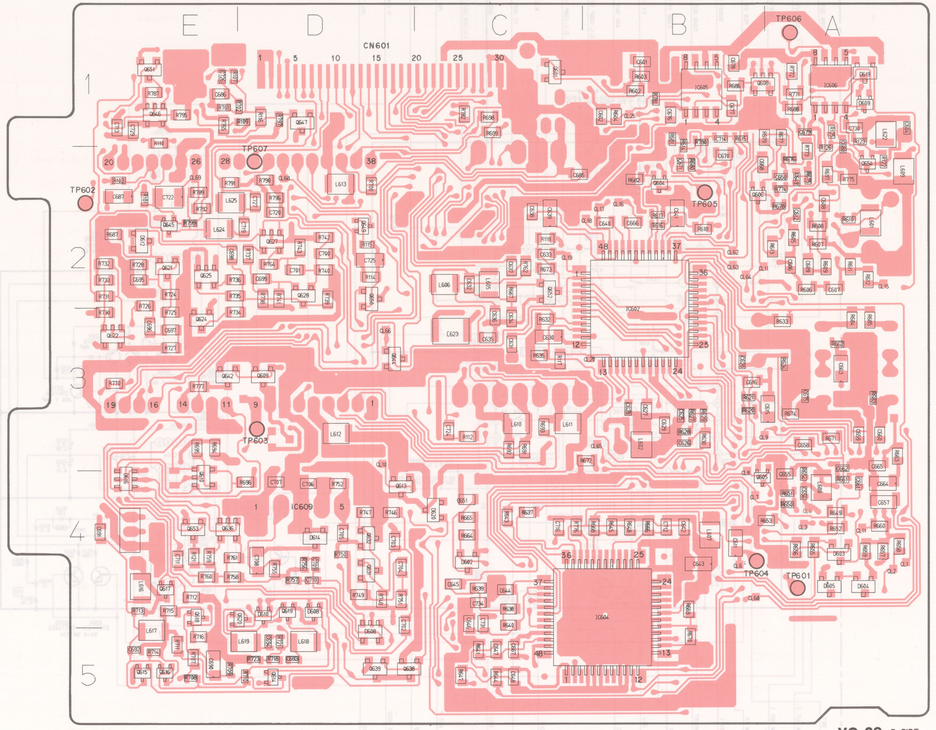
VO-29(1-633-784-11) B SIDE

CN601	D-1
D609	A-1
D614	D-4
D616	E-3
D619	A-1
D620	C-4
IC602	B-3
IC604	B-5
IC605	B-1
IC606	A-1
Q601	C-1
Q604	B-2
Q606	B-2
Q608	A-1
Q609	D-3
Q610	E-4
Q613	C-3
Q614	D-5
Q615	E-5
Q616	E-5
Q617	E-4
Q618	E-4
Q631	D-4
Q632	D-4
Q634	D-4
Q636	E-4
Q638	D-5
Q639	D-5
Q645	E-2
Q646	E-1
Q647	D-1
Q649	D-2
Q650	D-2
Q651	E-1
Q652	C-2
Q654	A-2



VO-29 —A SIDE—
1-633-784-11(1)
EVV-9000

A Side is the same as COMPONENT Side

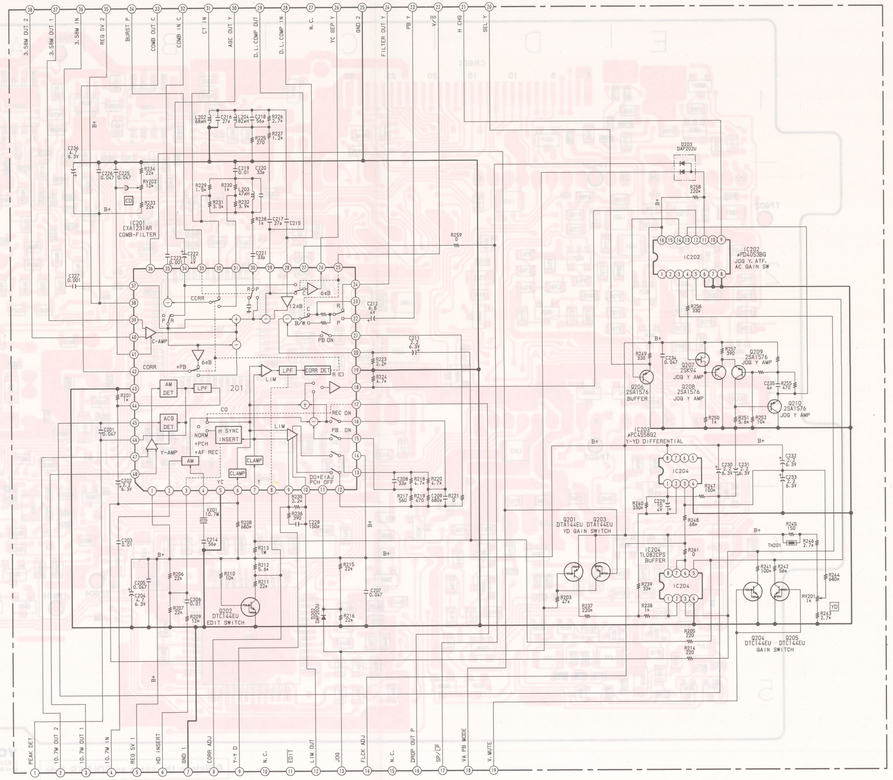


VO-29 —B SIDE—
1-633-784-11(1)
EVV-9000

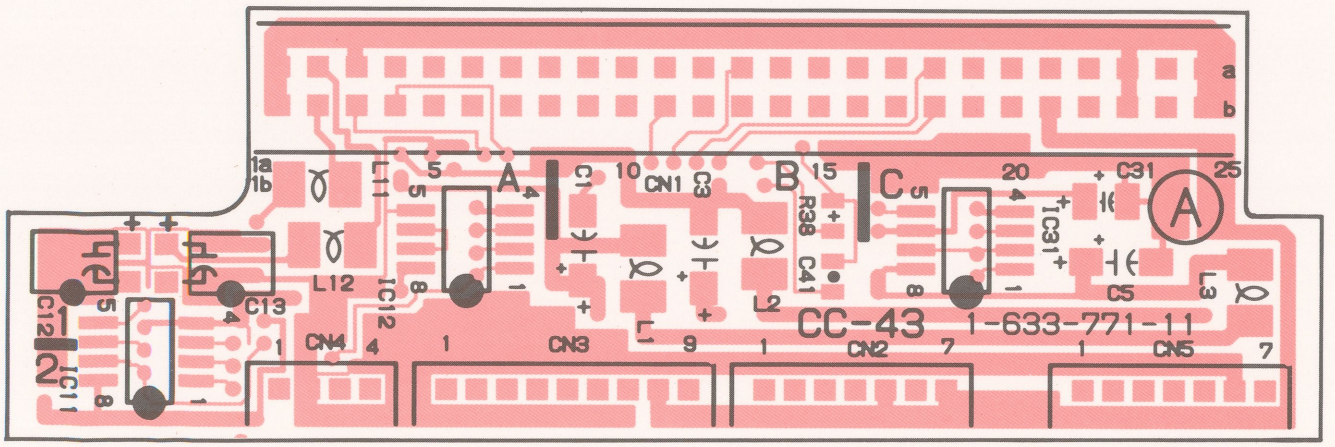
B Side is the same as SOLDER Side

HD-8, CC-43 HD-8, CC-43

HD-8 ; COMB FILTER
CC-43 ; CAMERA CONNECTION

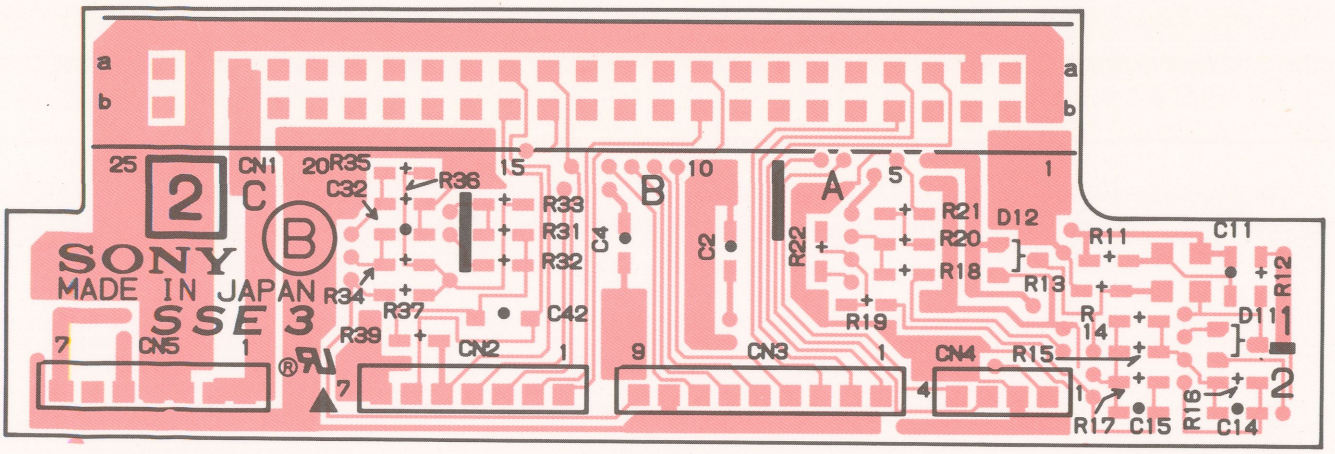


CC-43; CAMERA CONNECTION



A Side is the same as COMPONENT Side

CC-43 —A SIDE—
1-633-771-11(1)
EVV-9000

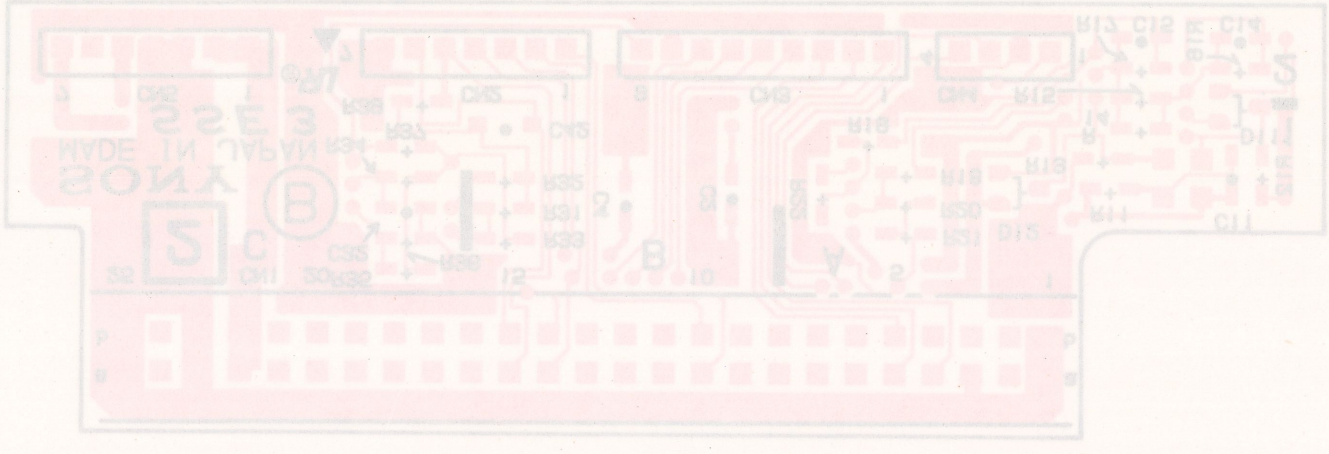


B Side is the same as SOLDER Side

CC-43 —B SIDE—
1-633-771-11(1)
EVV-9000

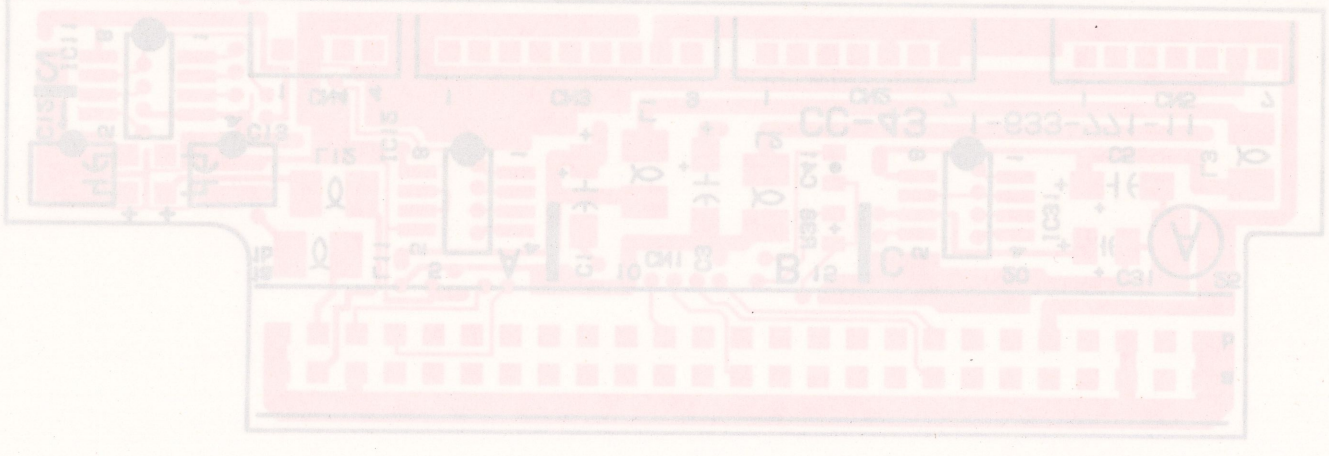
B side is the same as SOLDER side

CC-43 - B SIDE -



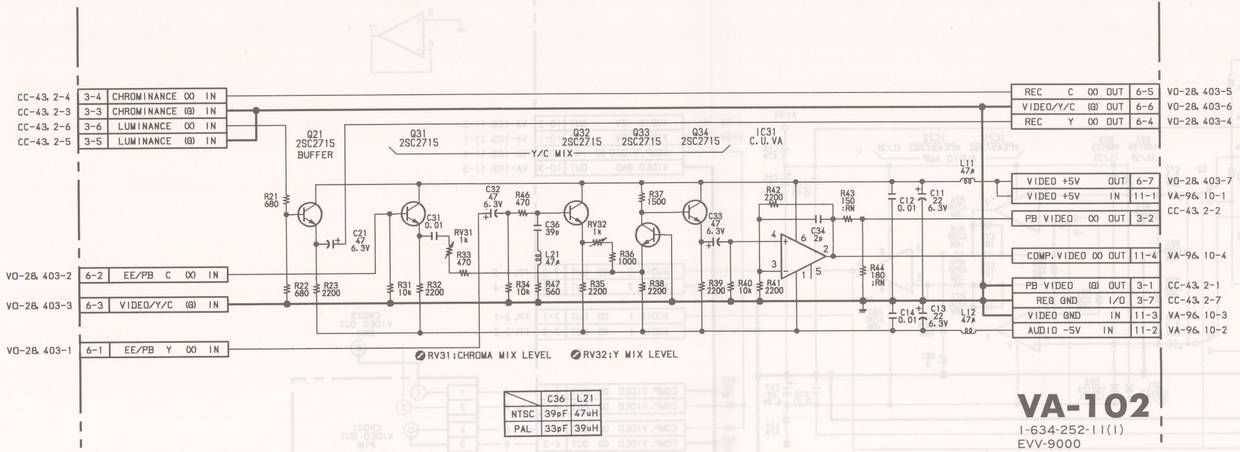
A side is the same as COMPONENT side

CC-43 - A SIDE -



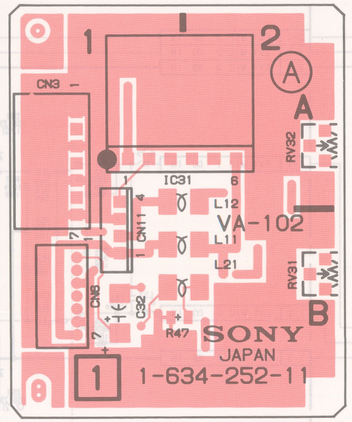
CC-43 : CAMERA CONNECTION

VA-102; EE/PB Y/C MIX



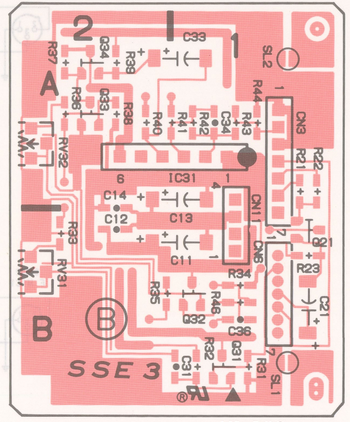
	C36	L21
NTSC	39pF	47uH
PAL	33pF	39uH

VA-102
1-634-252-11(1)
EVV-9000



VA-102 — A SIDE —
1-634-252-11(1)
EVV-9000

A Side is the same as COMPONENT Side

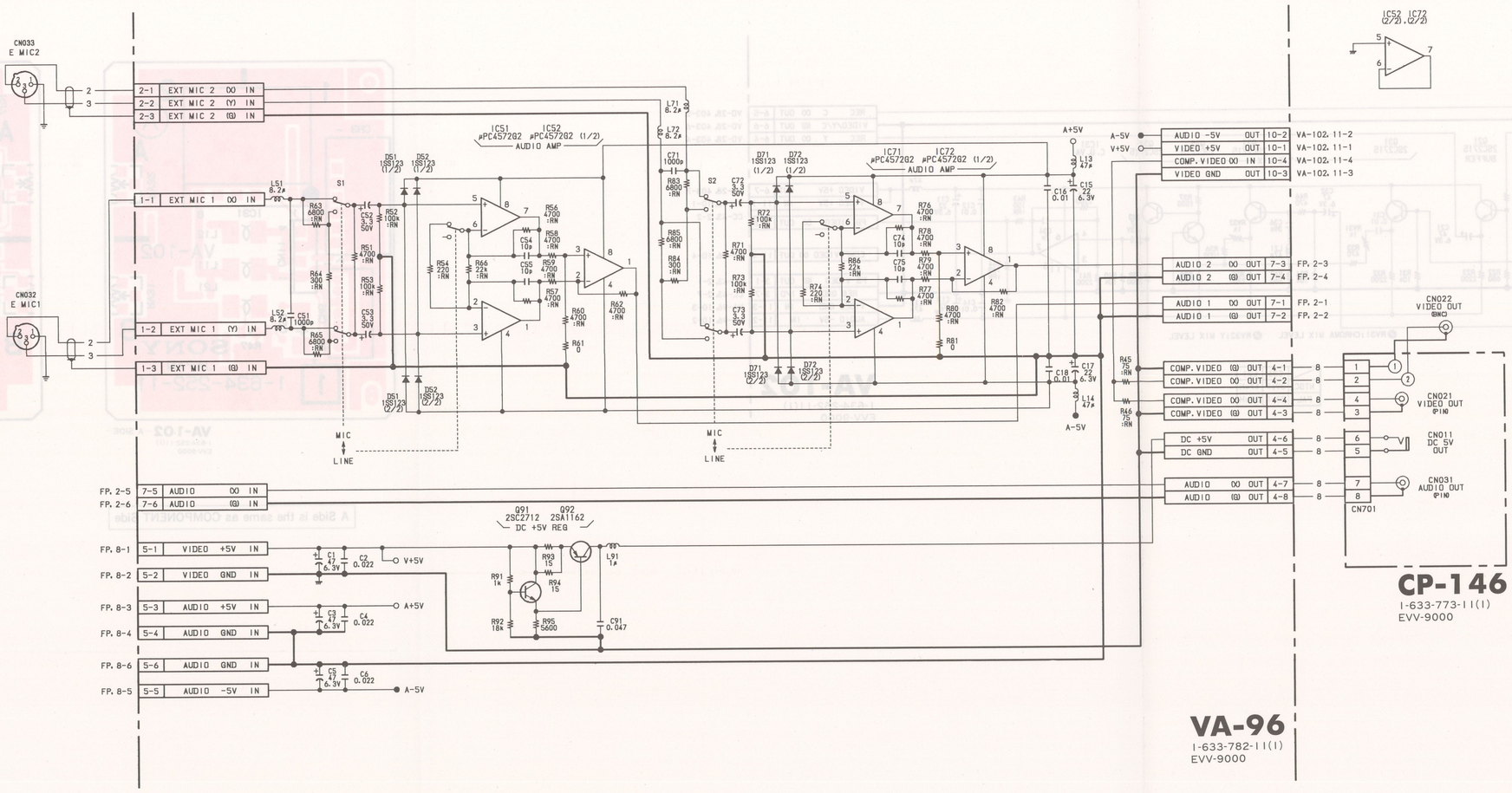


VA-102 — B SIDE —
1-634-252-11(1)
EVV-9000

B Side is the same as SOLDER Side

VA-96, CP-146 VA-96, CP-146

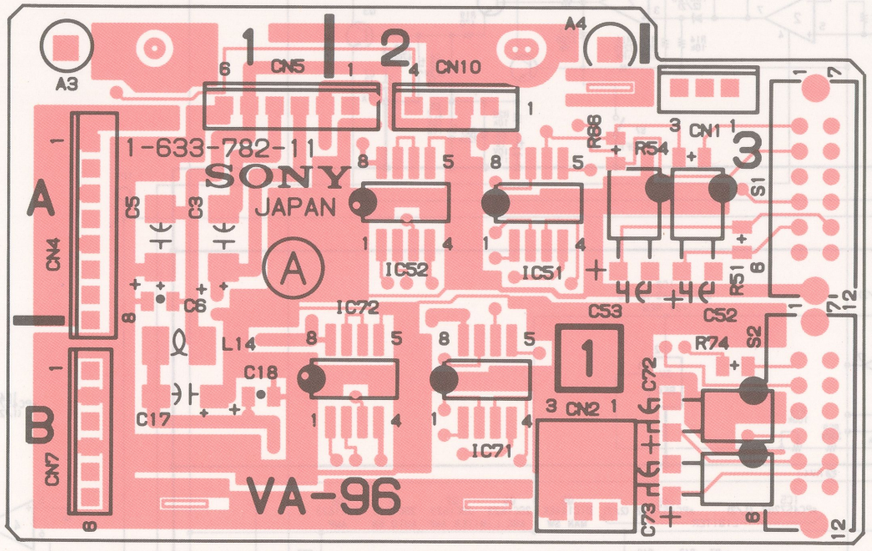
VA-96 ; AUDIO INPUT AMPLIFIER
CP-146 ; CONNECTOR PANEL



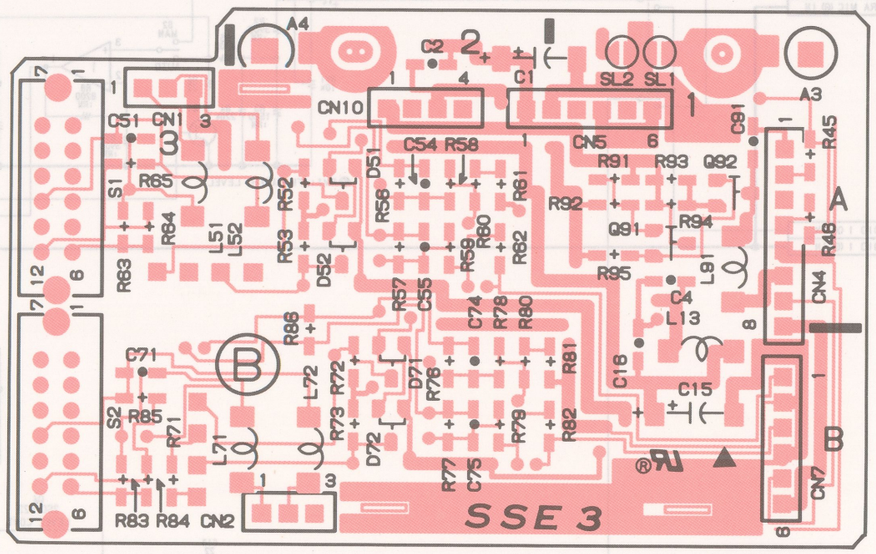
CP-146
1-633-773-11(1)
EVV-9000

VA-96
1-633-782-11(1)
EVV-9000

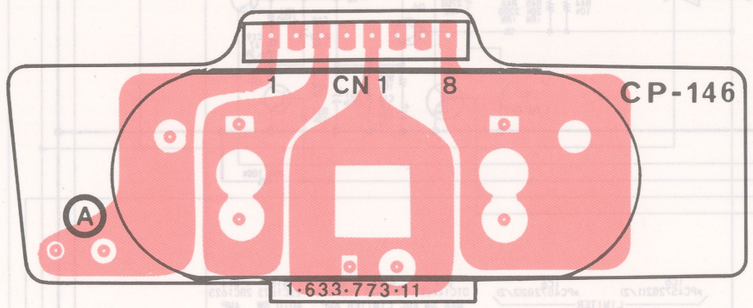
VA-96 ; AUDIO INPUT AMPLIFIER
CP-146 ; CONNECTOR PANEL



VA-96 — A SIDE —
1-633-782-11(1)
EVV-9000

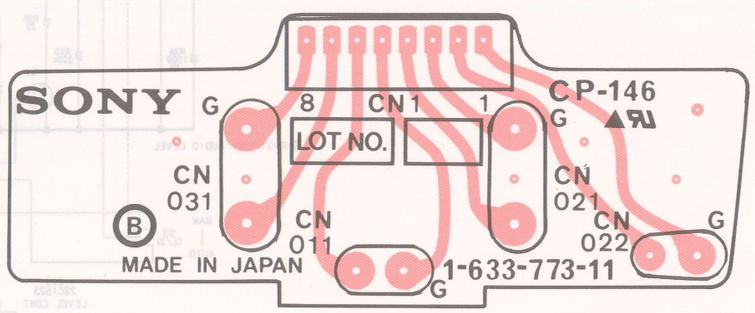


VA-96 — B SIDE —
1-633-782-11(1)
EVV-9000



CP-146 — A SIDE —
1-633-773-11(1)
EVV-9000

A Side is the same as COMPONENT Side



CP-146 — B SIDE —
1-633-773-11(1)
EVV-9000

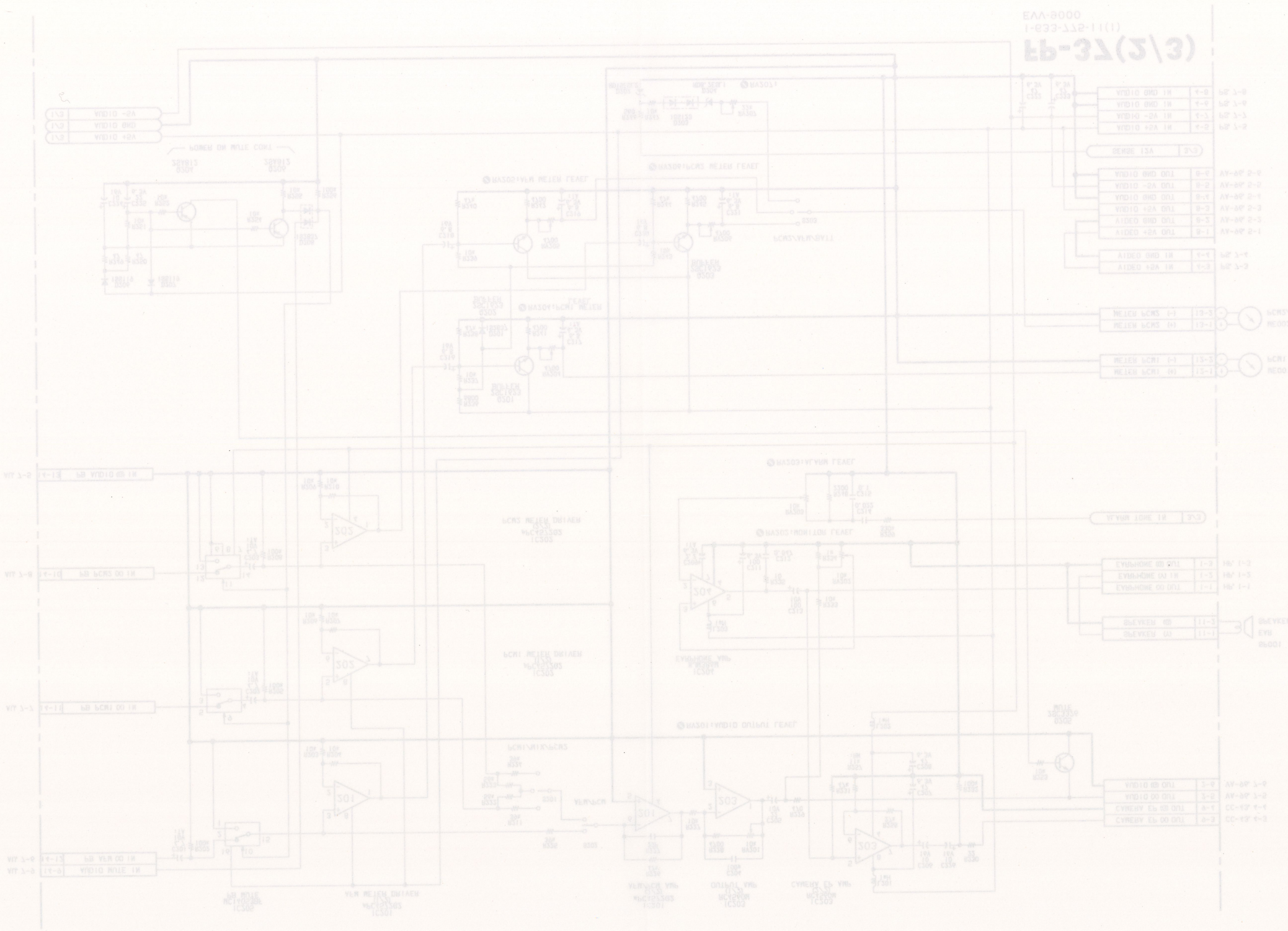
B Side is the same as SOLDER Side

FP-37(1/3); AUDIO INPUT AMPLIFIER

FP-37(1/3)
1-633-775-11(1)
EVV-9000

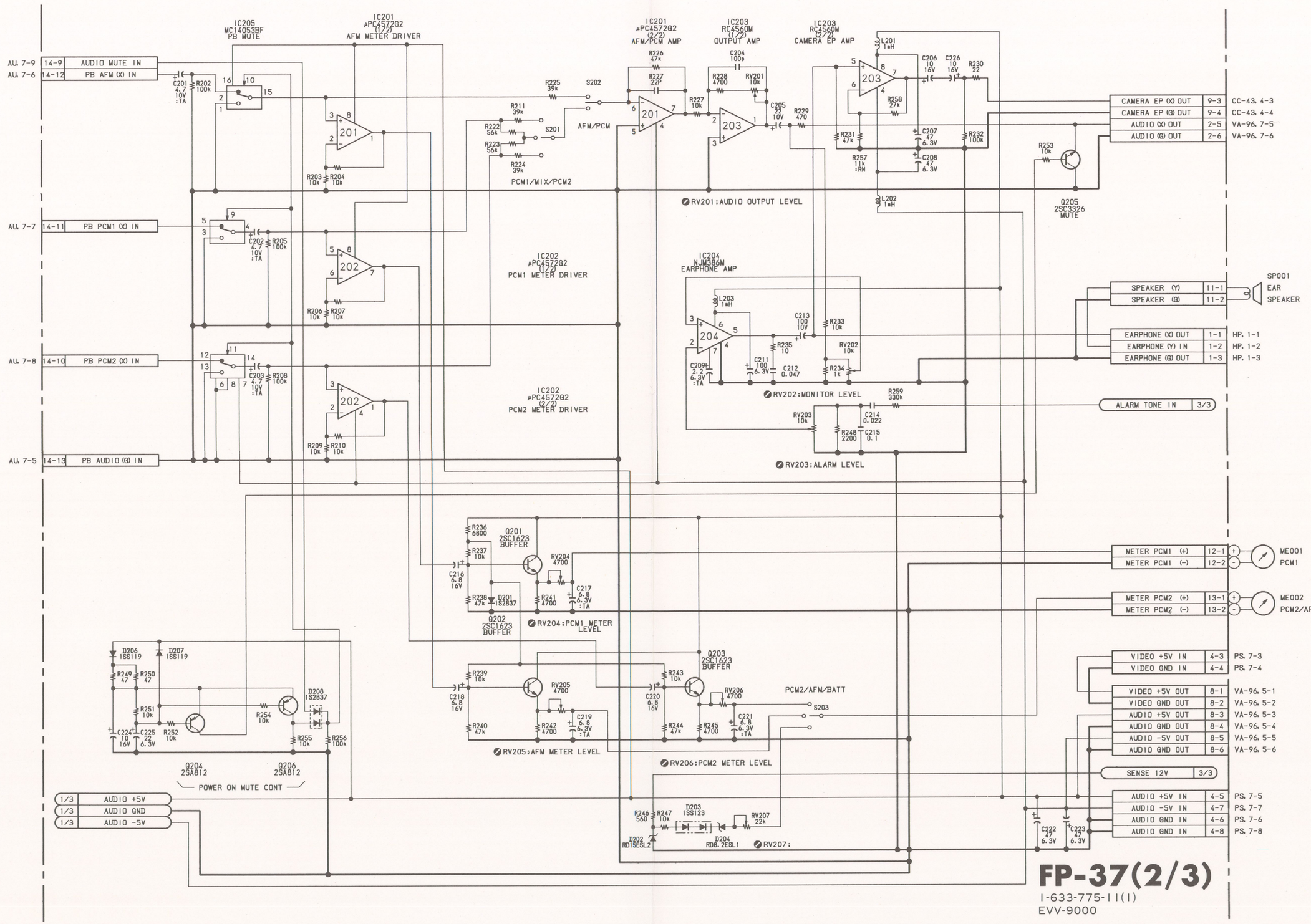
13-16 13-16

A B C D E F G H



TP-37(3/3) : AUDIO OUTPUT AMPLIFIER

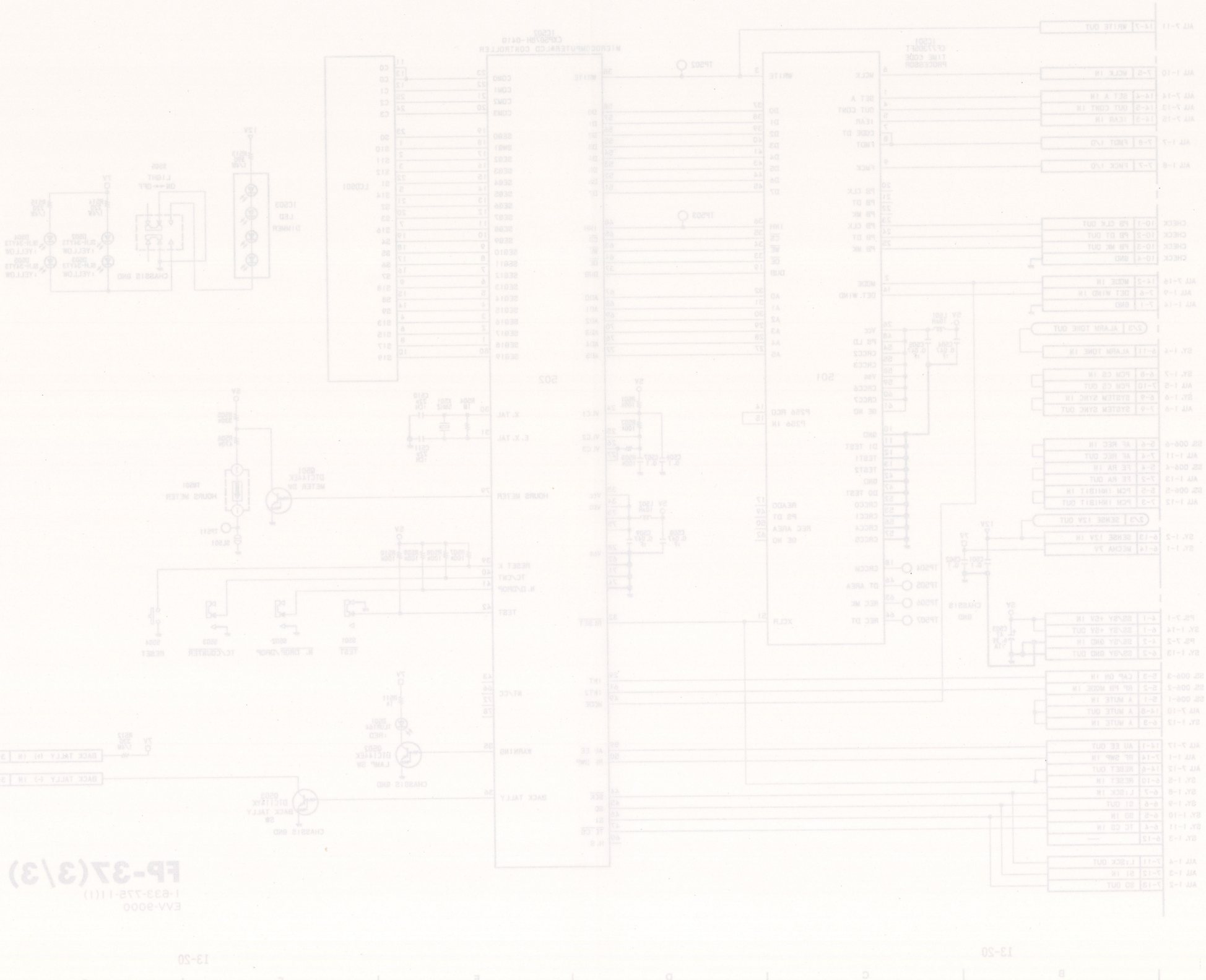
FP-37(2/3) ; AUDIO OUTPUT AMPLIFIER



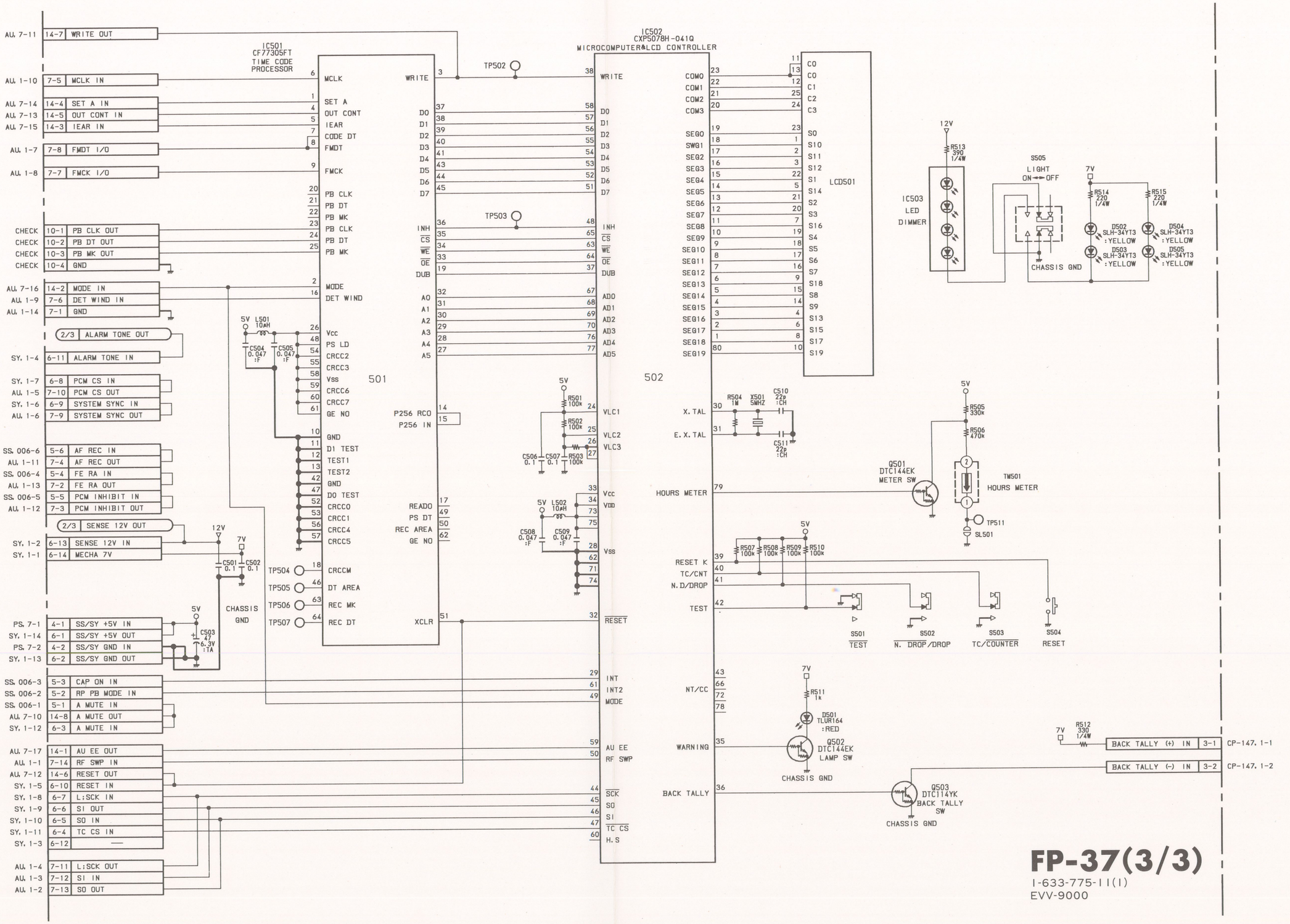
FP-37(2/3)

I-633-775-11(1)

EVV-9000



FP-37(3/3); TIME CODE PROCESS



FP-37(3/3)
1-633-775-11(1)
EVV-9000

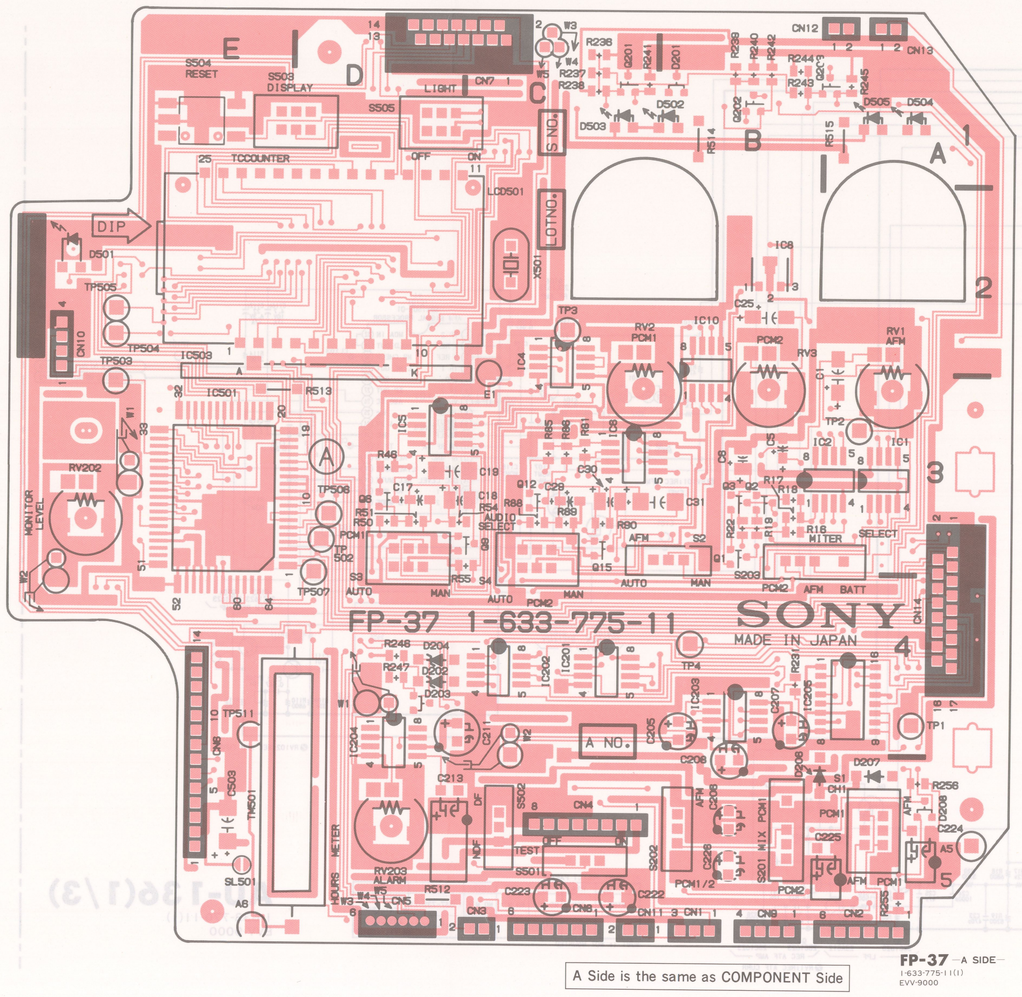
FP-37; AUDIO INPUT/OUTPUT AMPLIFIER TIME CODE PROCESS

FP-37(1-633-775-11) A SIDE

D201	B-1
D202	D-4
D203	D-4
D204	D-4
D206	B-5
D207	A-5
D208	A-5
D501	E-2
D502	B-1
D503	C-1
D504	A-1
D505	A-1
IC1	A-3
IC2	B-3
IC4	C-2
IC5	D-3
IC6	C-3
IC8	B-2
IC10	B-2
IC201	C-4
IC202	C-4
IC203	B-4
IC204	D-4
IC205	B-4
IC501	E-3
IC503	E-2
LCD501	C-2
Q1	B-3
Q2	B-3
Q3	B-3
Q6	D-3
Q9	C-3
Q12	C-3
Q15	C-3
Q201	C-1
Q202	B-1
Q203	B-1
RV1	A-2
RV2	C-2
RV3	B-2
RV202	E-3
RV203	D-5
S1	A-5
S2	B-3
S3	D-4
S4	C-4
S201	B-5
S202	B-5
S203	B-3
S501	C-5
S502	C-5
S503	E-1
S504	E-1
S505	D-1
TM501	E-5
X501	C-2

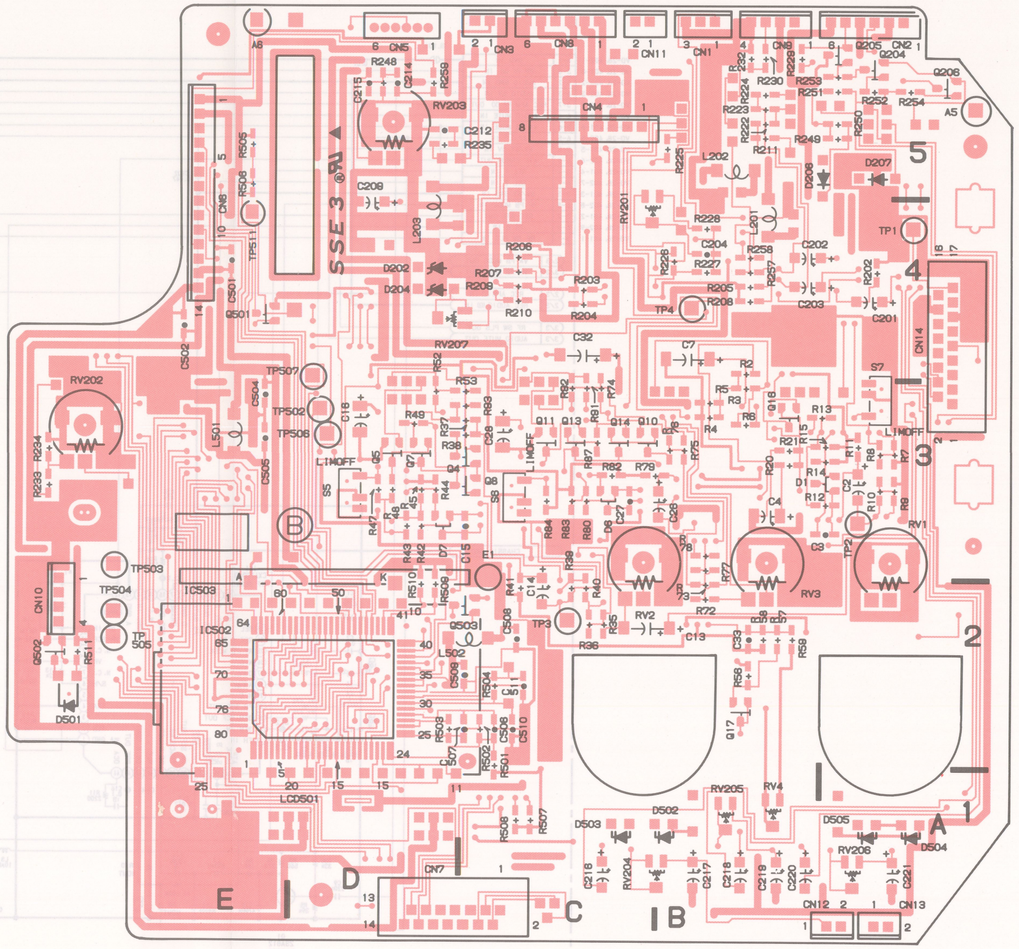
FP-37(1-633-775-11) B SIDE

CN1	B-1
CN2	A-5
CN3	C-5
CN4	C-5
CN5	D-5
CN6	E-4
CN7	D-1
CN8	C-5
CN9	B-5
CN10	E-2
CN11	C-5
CN12	B-1
CN13	A-1
CN14	A-4
D1	B-3
D6	C-3
D7	D-3
E1	C-3
IC502	E-2
Q4	D-3
Q5	D-3
Q7	D-3
Q8	C-3
Q10	C-3
Q11	C-3
Q13	C-3
Q14	C-3
Q16	B-3
Q17	B-2
Q204	A-5
Q205	A-5
Q206	A-5
Q501	E-4
Q502	E-2
Q503	C-2
RV4	B-1
RV201	C-4
RV204	C-1
RV205	B-1
RV206	A-1
RV207	D-4
S5	D-3
S6	C-3
S7	A-4
TP1	A-4
TP2	A-3
TP3	C-2
TP4	B-4
TP502	E-3
TP503	E-3
TP504	E-2
TP505	E-2
TP506	E-3
TP507	E-4
TP511	E-4



A Side is the same as COMPONENT Side

FP-37 —A SIDE—
1-633-775-11(1)
EVV-9000

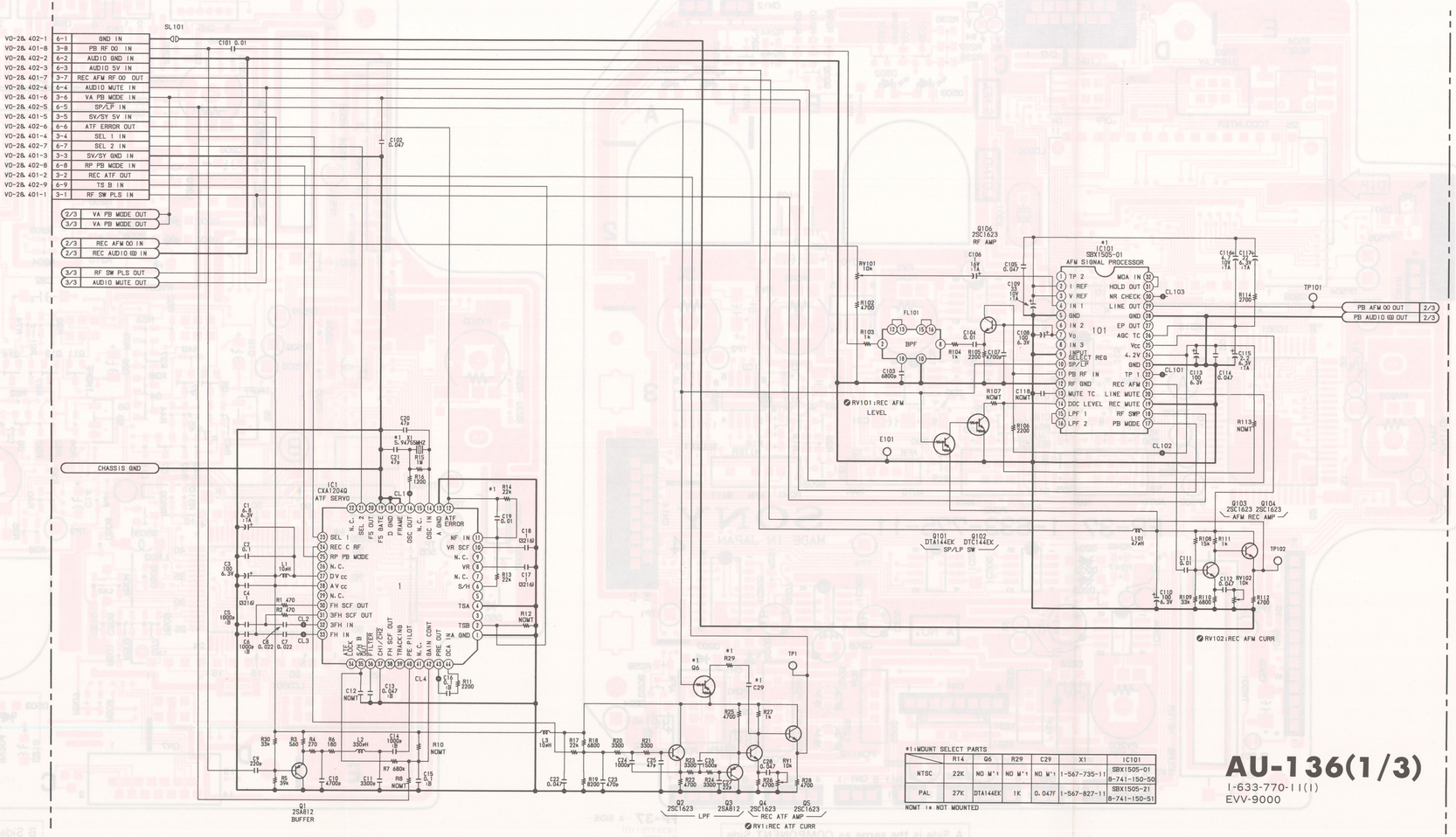


B Side is the same as SOLDER Side

FP-37 —B SIDE—
1-633-775-11(1)
EVV-9000

AU-136(1/3) AU-136(1/3)

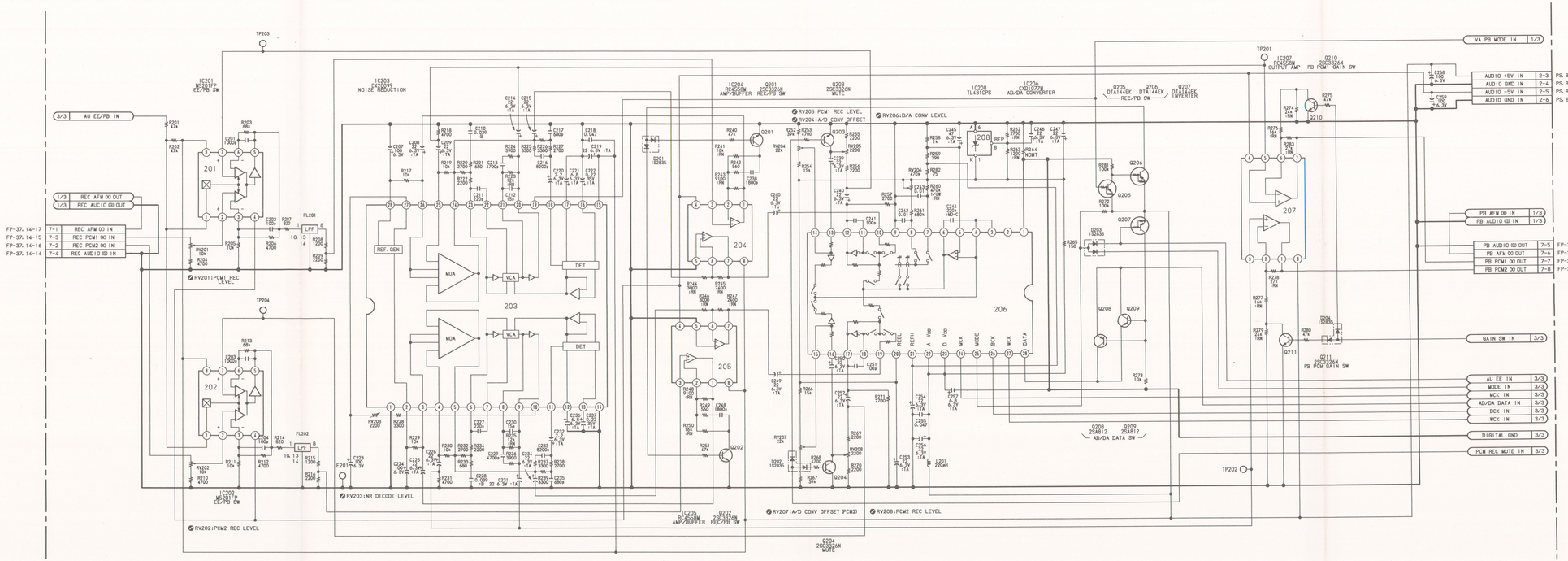
AU-136(1/3); AFM SIGNAL PROCESS/ATF SERVO



AU-136(2/3) : PCM AUDIO PROCESS (ANALOG)

AU-136(2/3) AU-136(2/3)

AU-136(2/3); PCM AUDIO PROCESS (ANALOG)



AU-136(2/3)

1-633-770-11(1)

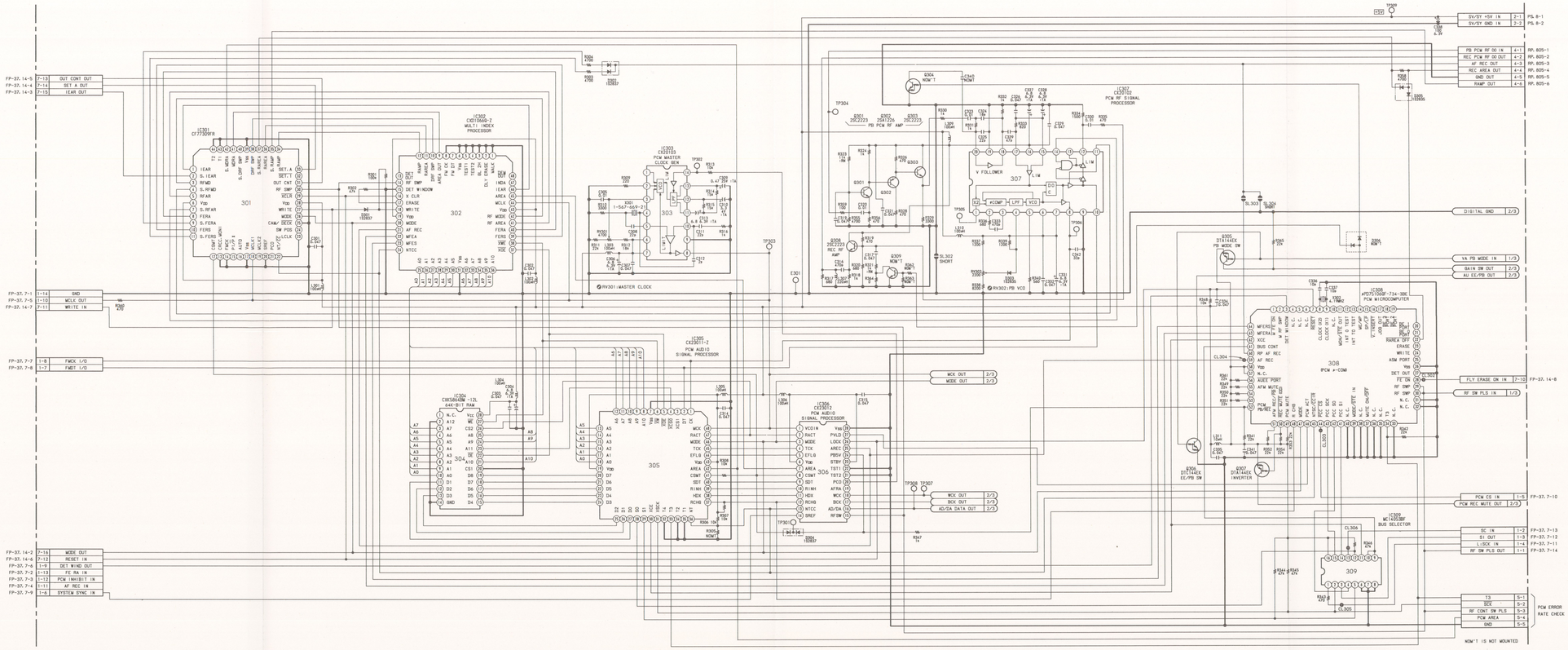
EVV-9000

AU-136(3/3) PCM AUDIO PROCESS (DIGITAL)

AU-136(3/3)

AU-136(3/3) AU-136(3/3)

AU-136(3/3) ; PCM AUDIO PROCESS (DIGITAL)


FP-37, 14-5 7-13 OUT CONT OUT
FP-37, 14-4 7-14 SET A OUT
FP-37, 14-3 7-15 IEAR OUT
FP-37, 7-1 1-14 GND
FP-37, 7-5 1-10 WCLK OUT
FP-37, 14-7 7-11 WRITE IN
FP-37, 7-7 1-8 FWCK I/O
FP-37, 7-8 1-7 FWDT I/O
FP-37, 14-2 7-16 MODE OUT
FP-37, 14-6 7-12 RESET IN
FP-37, 7-6 1-9 DET WIND OUT
FP-37, 7-2 1-13 FE RA IN
FP-37, 7-3 1-12 PCM INHIBIT IN
FP-37, 7-4 1-11 AF REC IN
FP-37, 7-9 1-6 SYSTEM SYNC IN
IC301 CX77309FR
IC302 CXD1060-2 MULTI INDEX PROCESSOR
IC303 CX20703 PCM MASTER CLOCK GEN
X301 1-567-669-21
RV301:MASTER CLOCK
IC304 CXK5864BM-12L 64K-BIT RAM
IC305 CX23011-2 PCM AUDIO SIGNAL PROCESSOR
IC306 CX23013 PCM AUDIO SIGNAL PROCESSOR
IC307 CX20120 PCM RF SIGNAL PROCESSOR
V FOLLOWER
RV302:PB VCO
IC308 MPD75308GF-734-3BE PCM MICROCOMPUTER
IC309 MC14053BF BUS SELECTOR
Q305 DTA144EK EE/PB SW
Q306 DTA144EK INVERTER
Q307 DTA144EK PB MODE SW
Q308 DTA144EK NOW'T
Q309 DTA144EK NOW'T
Q310 DTA144EK NOW'T
Q311 DTA144EK NOW'T
Q312 DTA144EK NOW'T
Q313 DTA144EK NOW'T
Q314 DTA144EK NOW'T
Q315 DTA144EK NOW'T
Q316 DTA144EK NOW'T
Q317 DTA144EK NOW'T
Q318 DTA144EK NOW'T
Q319 DTA144EK NOW'T
Q320 DTA144EK NOW'T

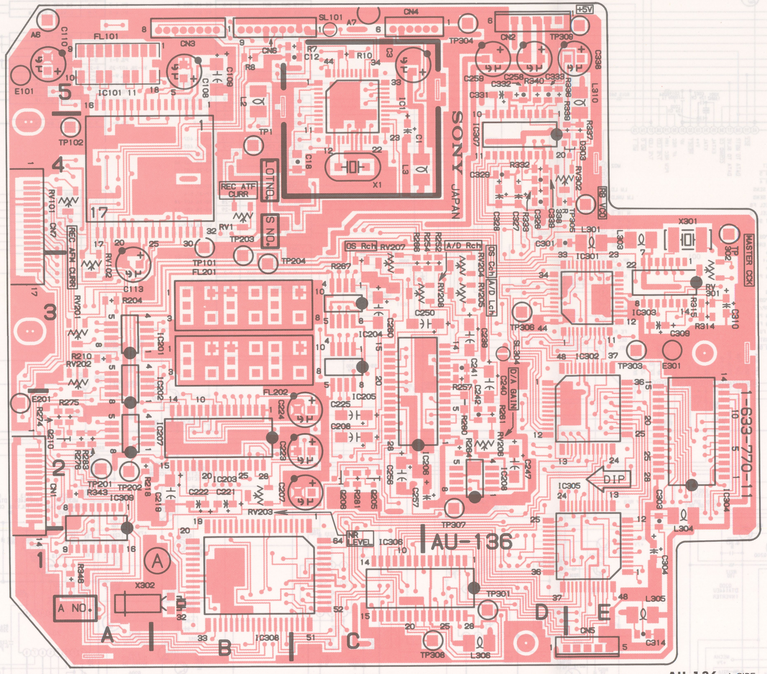
AU-136; AFM SIGNAL PROCESS/ATF SERVO
PCM AUDIO PROCESS

AU-136(1-633-770-11) A SIDE

CN1	A-2	TP102	A-4
CN2	D-5	TP201	A-2
CN3	B-5	TP202	A-2
CN4	C-5	TP203	B-4
CN5	E-1	TP204	B-3
CN6	B-5	TP301	D-1
CN7	A-4	TP302	E-4
		TP303	E-3
D303	E-4	TP304	D-5
		TP305	E-4
E101	A-5	TP306	D-3
E201	A-2	TP307	D-2
E301	E-3	TP308	D-1
		TP309	D-5
FL101	A-5		
FL201	B-3	X1	C-1
FL202	B-2	X301	E-4
		X302	A-1
IC1	C-5		
IC101	A-5		
IC201	B-3		
IC202	B-3		
IC203	B-2		
IC204	C-3		
IC205	C-2		
IC206	D-2		
IC207	B-2		
IC208	D-2		
IC301	E-3		
IC302	E-3		
IC303	E-3		
IC304	E-2		
IC305	D-2		
IC306	C-1		
IC307	D-4		
IC308	B-1		
IC309	A-2		
Q205	C-2		
Q206	C-2		
Q210	A-2		
RV1	B-4		
RV101	A-4		
RV102	A-3		
RV201	A-3		
RV202	A-3		
RV203	B-2		
RV204	D-3		
RV205	D-3		
RV206	D-2		
RV207	C-4		
RV208	D-3		
RV301	E-3		
RV302	D-4		
TP1	B-4		
TP101	B-3		

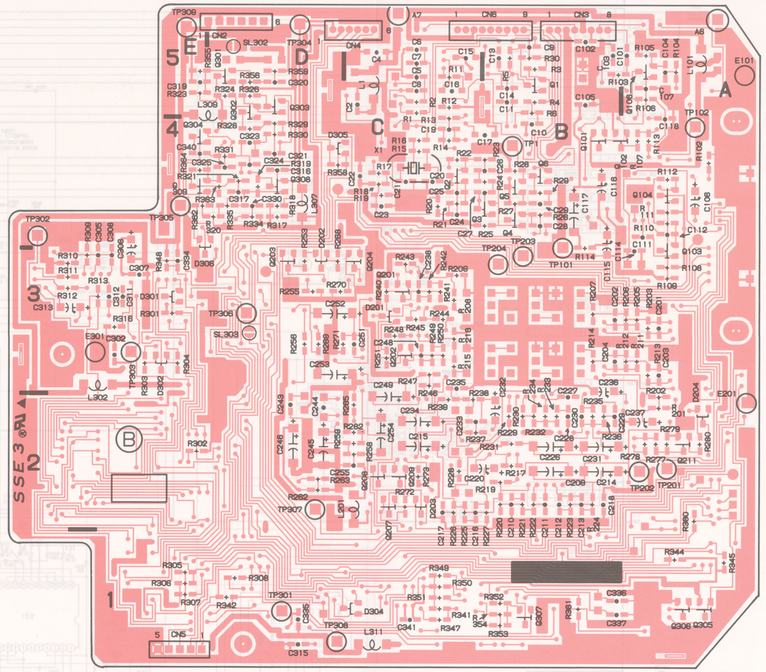
AU-136(1-633-770-11) B SIDE

D201	C-3		
D202	D-4		
D203	C-2		
D204	A-2		
D301	E-3		
D302	E-3		
D304	C-1		
D305	D-4		
Q1	B-5		
Q2	C-4		
Q3	C-4		
Q4	B-4		
Q5	B-4		
Q101	B-4		
Q102	A-4		
Q103	A-3		
Q104	A-4		
Q106	A-5		
Q201	C-3		
Q202	C-3		
Q203	D-3		
Q204	C-3		
Q207	C-1		
Q208	C-2		
Q209	C-2		
Q211	A-2		
Q301	D-5		
Q302	D-5		
Q303	D-5		
Q305	A-1		
Q306	A-1		
Q307	B-1		
Q308	D-4		



AU-136 -A SIDE-
1-633-770-11(1)
EVV-9000

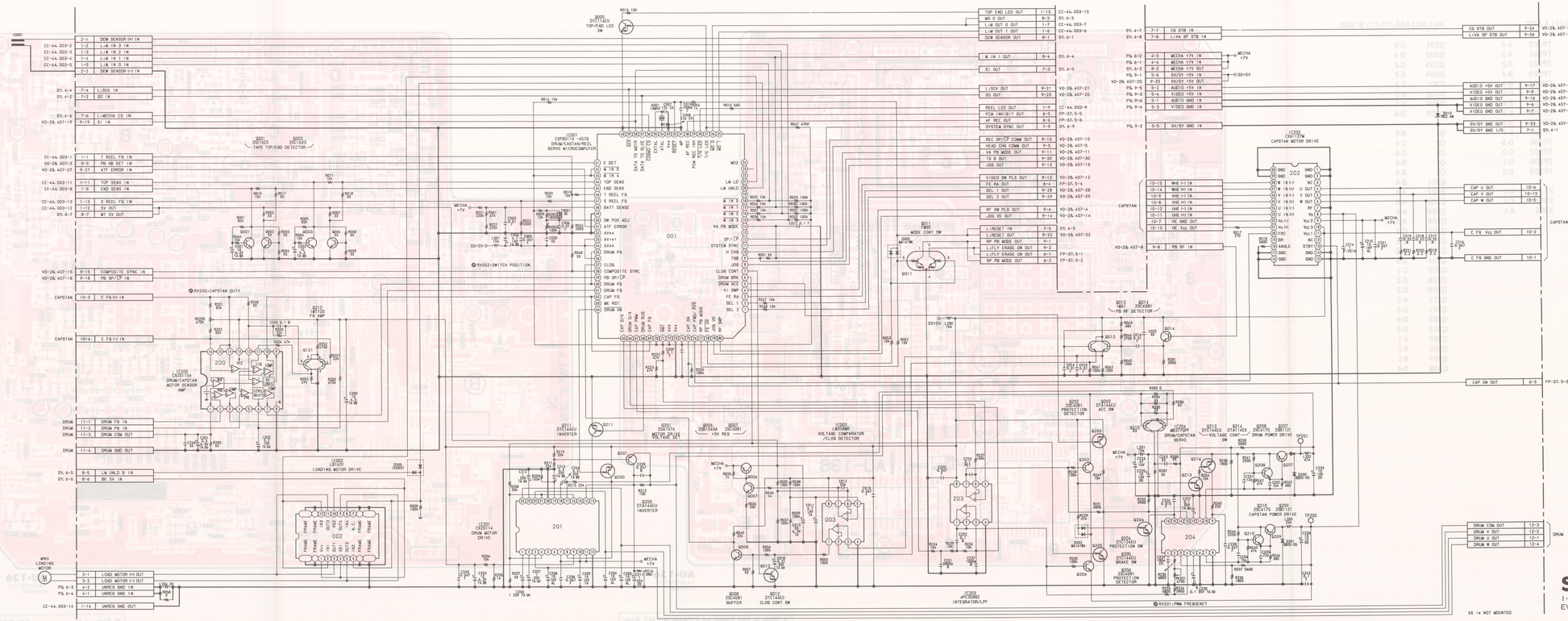
A Side is the same as COMPONENT Side



AU-136 -B SIDE-
1-633-770-11(1)
EVV-9000

B Side is the same as SOLDER Side

SS-43 ; SERVO SYSTEM/MECHANISM CONTROL



SS-43 SS-43

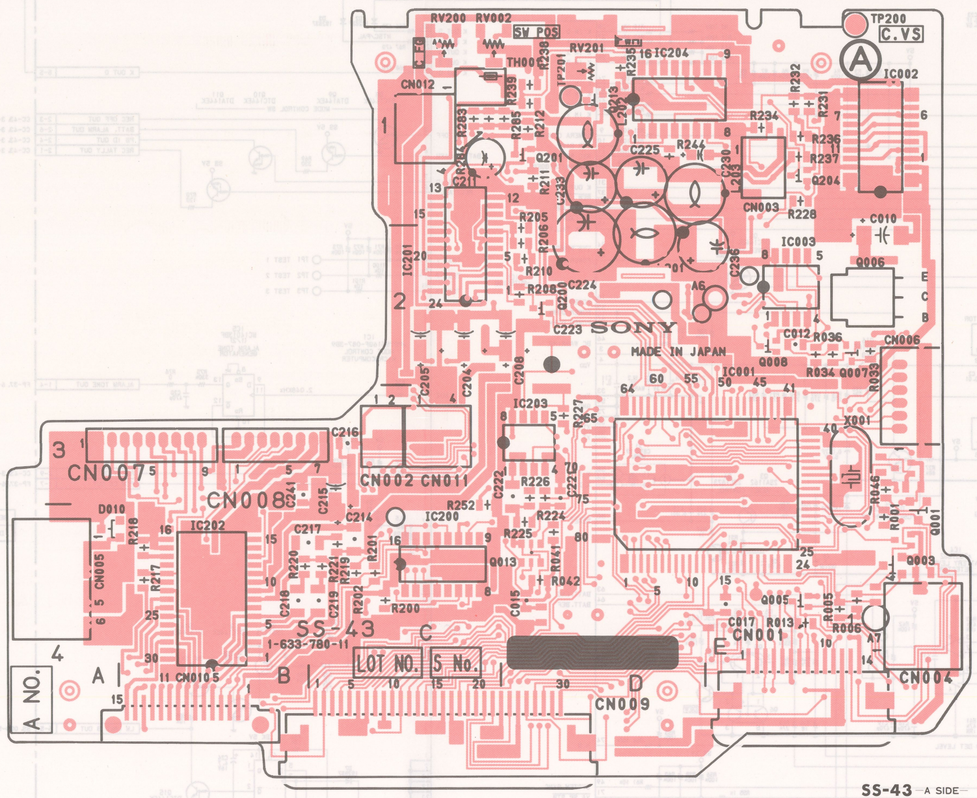
SS-43 ; SERVO SYSTEM/MECHANISM CONTROL

SS-43(1-633-780-11) A SIDE

CN001	E-4
CN002	C-3
CN003	E-1
CN004	E-4
CN005	A-4
CN006	E-2
CN007	A-3
CN008	B-3
CN009	C-4
CN010	B-4
CN011	C-3
CN012	C-1
D010	A-4
IC001	E-2
IC002	E-1
IC003	E-2
IC200	C-4
IC201	C-2
IC202	B-4
IC203	D-3
IC204	D-1
Q001	E-4
Q003	E-4
Q005	E-4
Q006	E-2
Q007	E-2
Q008	E-2
Q013	C-4
Q200	D-2
Q201	D-1
Q204	E-1
Q213	D-1
RV002	C-1
RV200	C-1
RV201	D-1
TH001	D-1
TP200	E-1
TP201	D-1
X001	E-3

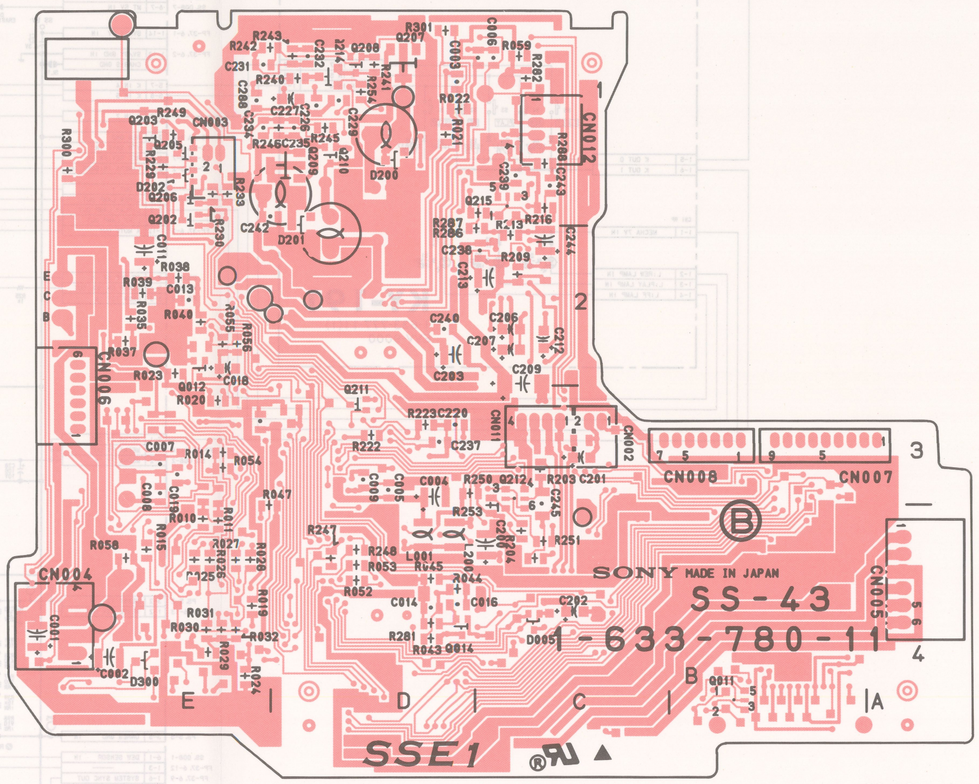
SS-43(1-633-780-11) B SIDE

D005	C-4
D200	D-1
D201	D-2
D202	E-1
D300	E-4
Q011	B-4
Q012	E-2
Q014	D-4
Q202	E-1
Q203	E-1
Q205	E-1
Q206	E-1
Q207	D-1
Q208	D-1
Q209	D-1
Q210	D-1
Q212	C-3
Q214	D-1



SS-43 — A SIDE
1-633-780-11(1)
EVV-9000

A Side is the same as COMPONENT Side

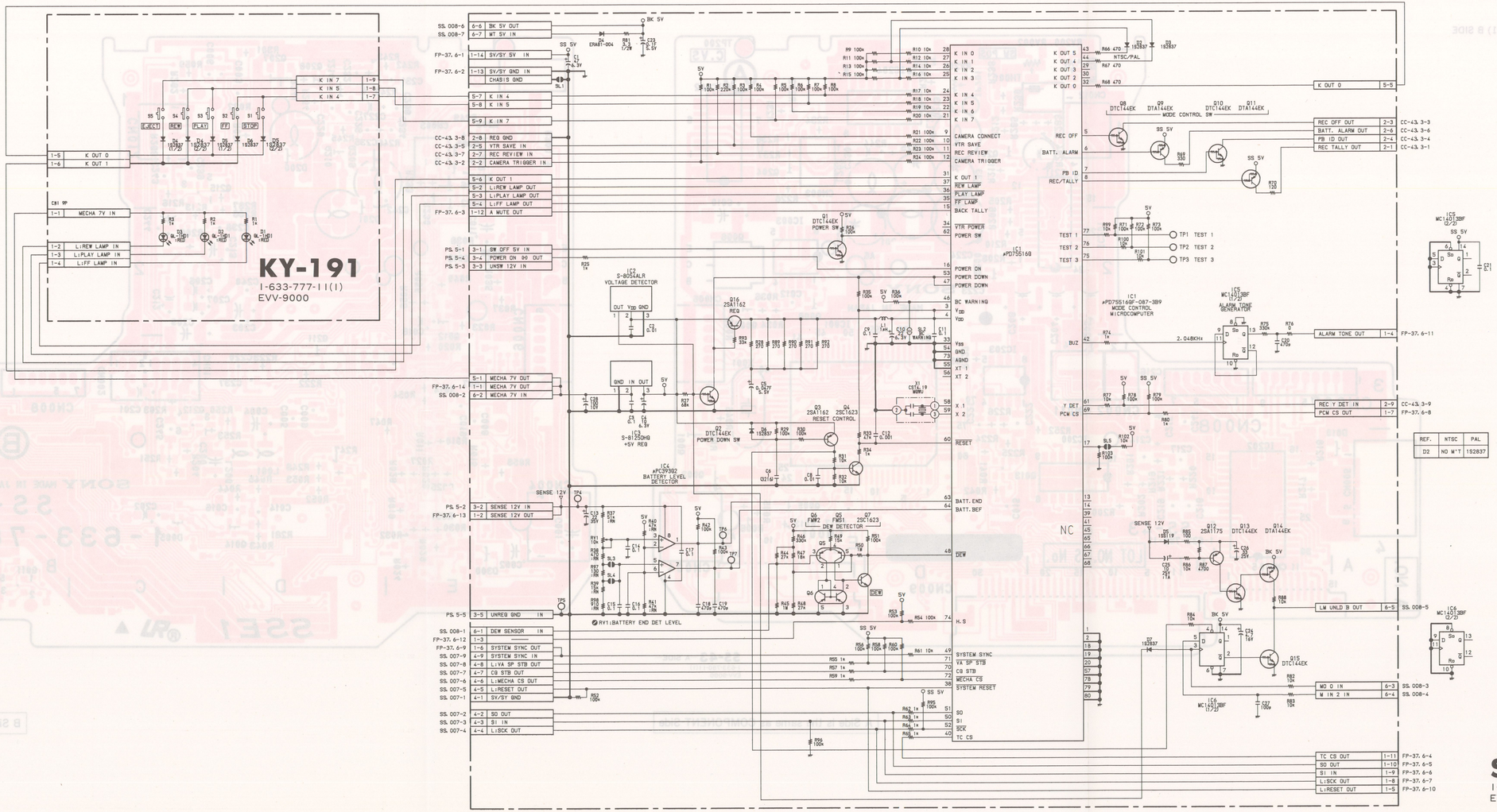


SS-43 — B SIDE
1-633-780-11(1)
EVV-9000

B Side is the same as SOLDER Side

SY-153, KY-191 SY-153, KY-191

SY-153 ; SYSTEM CONTROL
KY-191 ; FUNCTION KEY BOARD

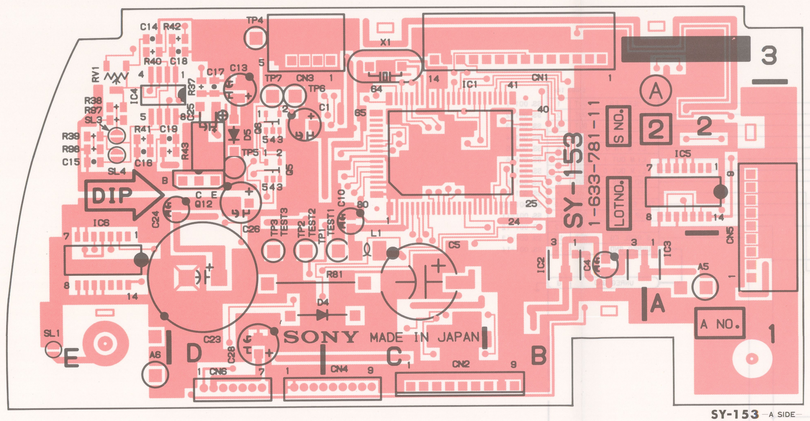


13-30

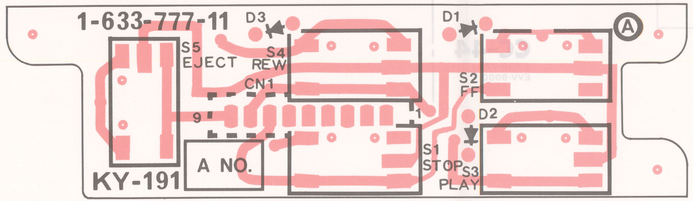
13-30

SY-153 ; SYSTEM CONTROL
KY-191 ; FUNCTION KEY BOARD

SY-153(1-633-781-11) A SIDE		SY-153(1-633-781-11) B SIDE	
CN1	B-3	D3	A-2
CN2	C-1	D6	B-2
CN3	D-3	D7	D-1
CN4	C-1		
CN5	A-1	Q1	C-2
CN6	D-1	Q2	B-1
		Q3	B-1
D4	D-1	Q4	A-1
D5	D-2	Q7	D-2
		Q8	C-1
IC1	C-2	Q9	C-1
IC2	B-1	Q10	C-1
IC3	A-1	Q11	C-1
IC4	E-2	Q13	D-2
IC5	A-2	Q14	D-1
IC6	E-2	Q15	E-2
		Q16	B-1
Q5	D-2		
Q6	D-2		
Q12	D-2		
RV1	E-3		
TP1	D-1		
TP2	D-2		
TP3	D-2		
TP4	D-3		
TP5	D-2		
TP6	D-2		
TP7	D-3		
X1	C-3		

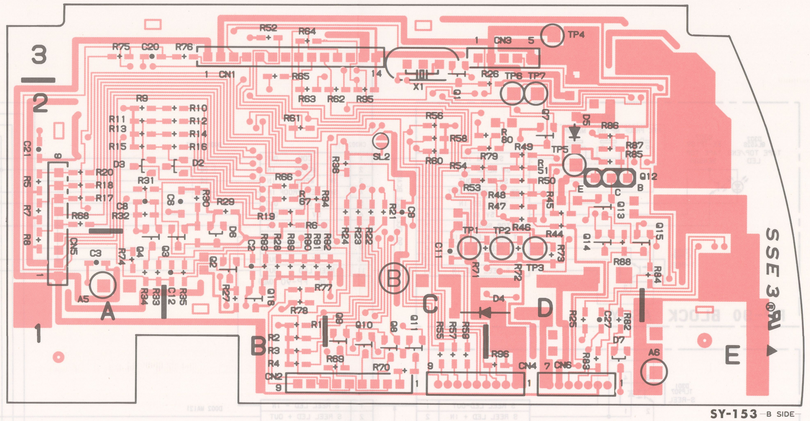


SY-153 — A SIDE —
1-633-781-11
EVV-9000

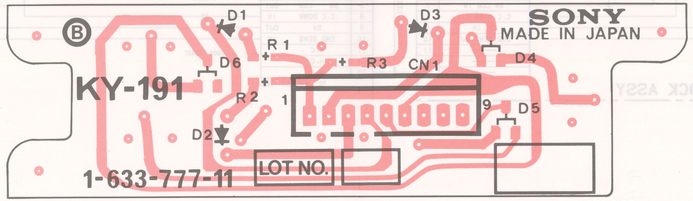


KY-191 — A SIDE —
1-633-777-11
EVV-9000

A Side is the same as COMPONENT Side



SY-153 — B SIDE —
1-633-781-11
EVV-9000

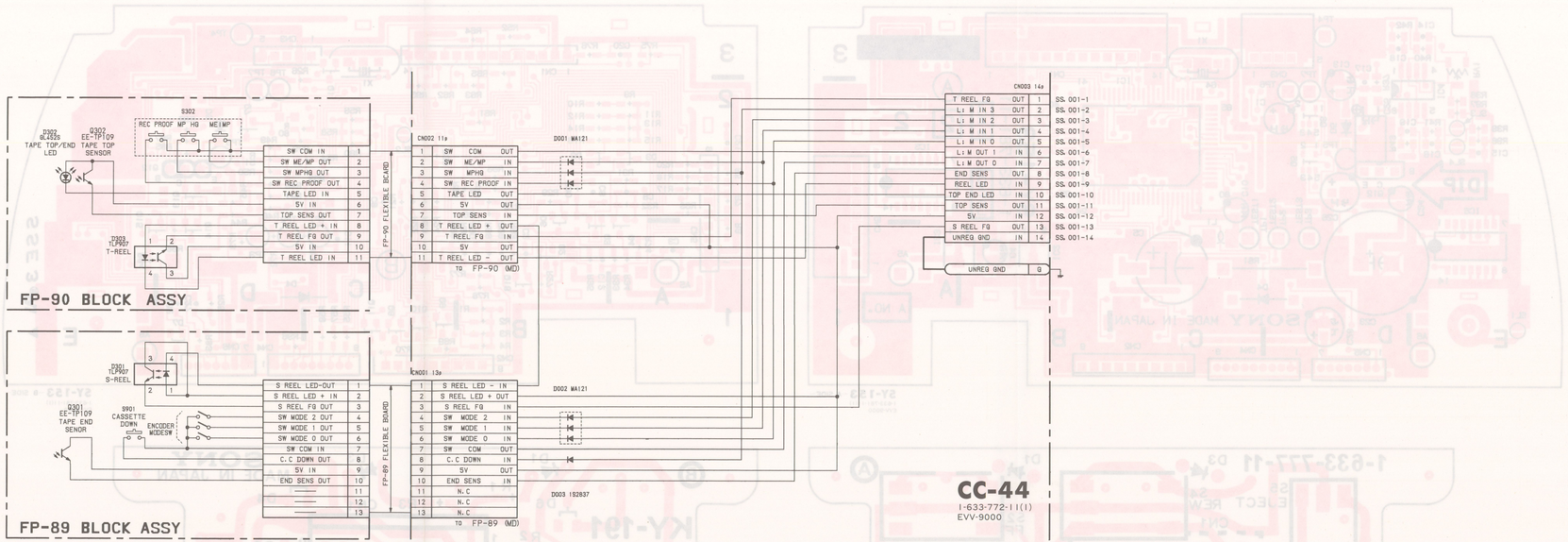


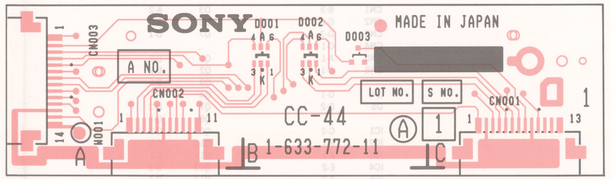
KY-191 — B SIDE —
1-633-777-11
EVV-9000

B Side is the same as SOLDER Side

CC-44, FP-89, FP-90 CC-44, FP-89, FP-90

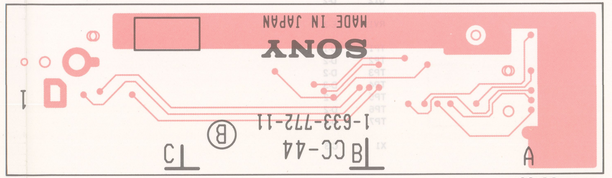
CC-44 ; TERMINAL
FP-89 ; MODE SWITCH/TAPE END SENSOR
FP-90 ; TAPE SELECT SWITCH/TAPE TOP SENSOR





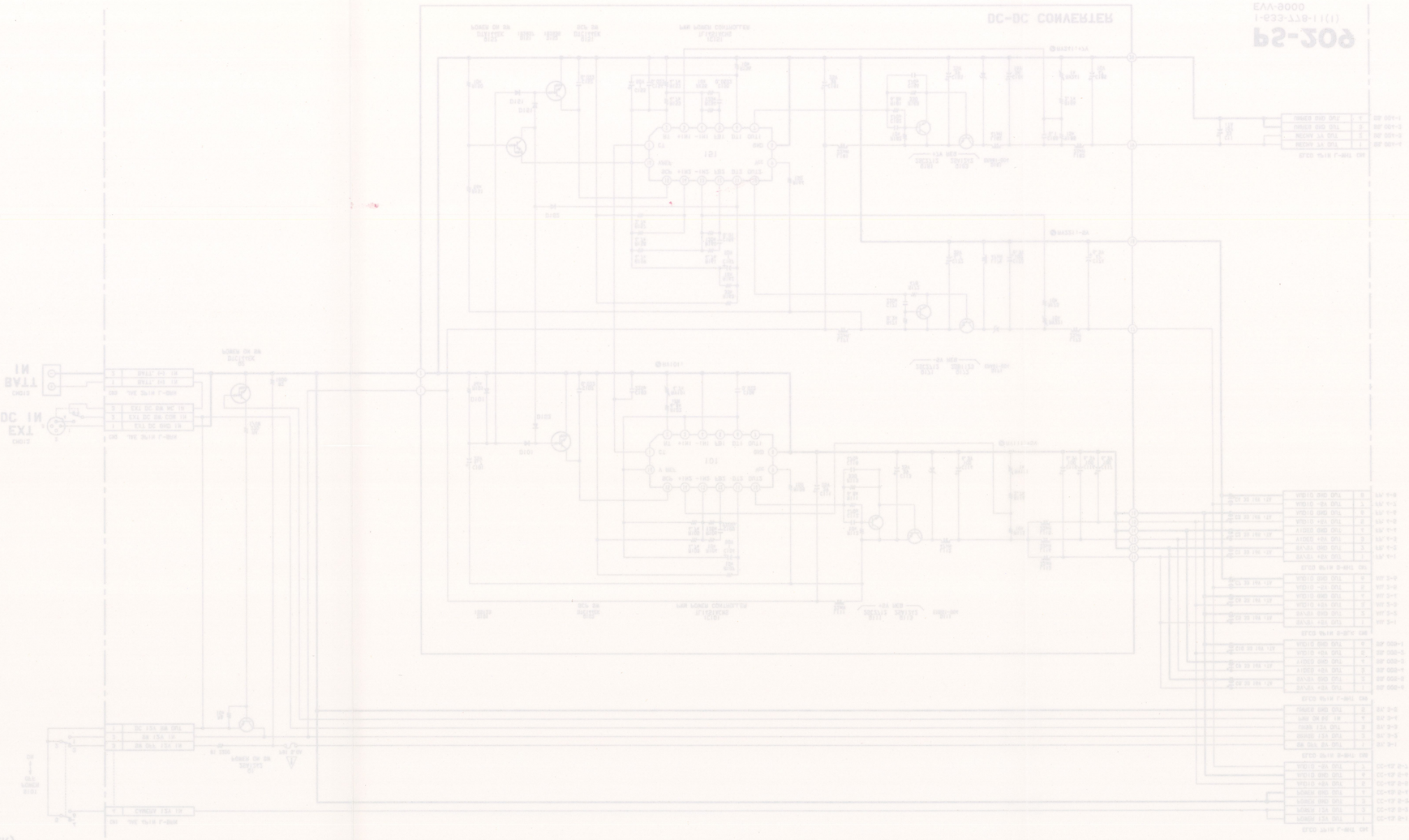
A Side is the same as COMPONENT Side

CC-44 A SIDE
I-633-772-11(1)
EVV-9000



B Side is the same as SOLDER Side

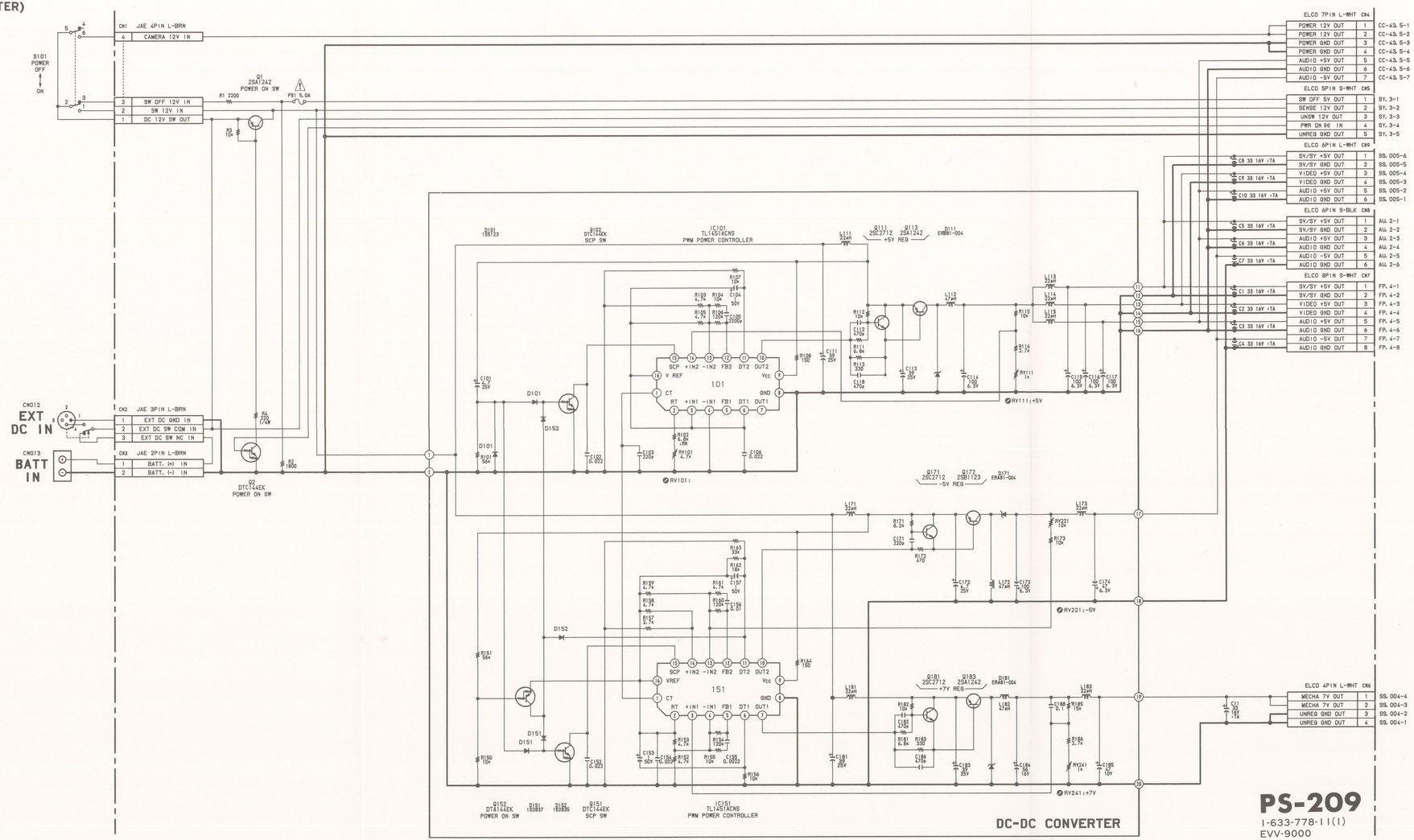
CC-44 B SIDE
I-633-772-11(1)
EVV-9000



PS-305 : POWER SUPPLY (DC-DC CONVERTER)

PS-209 PS-209

PS-209 ; POWER SUPPLY (DC-DC CONVERTER)



注意１：⚠印のついた部品は安全性を維持するために重要な部品です。従って交換する時は必ず指定の部品を使って下さい。

NOTE:
The ⚠-marked components are critical to safety.
Replace only with same components as specified.

PS-209
1-633-778-11(1)
EVV-9000

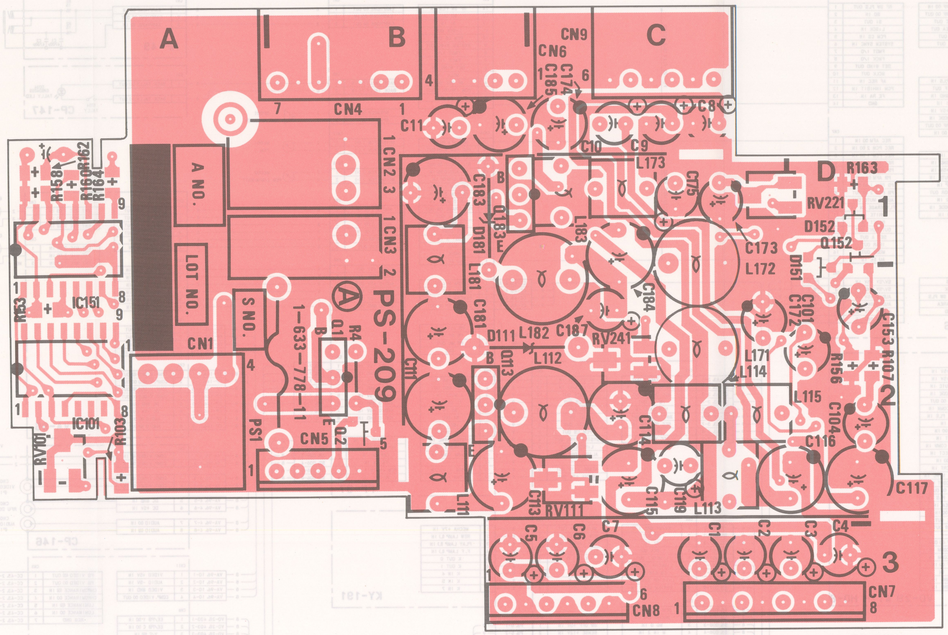
PS-209 ; POWER SUPPLY (DC-DC CONVERTER)

PS-209(1-633-778-11) A SIDE

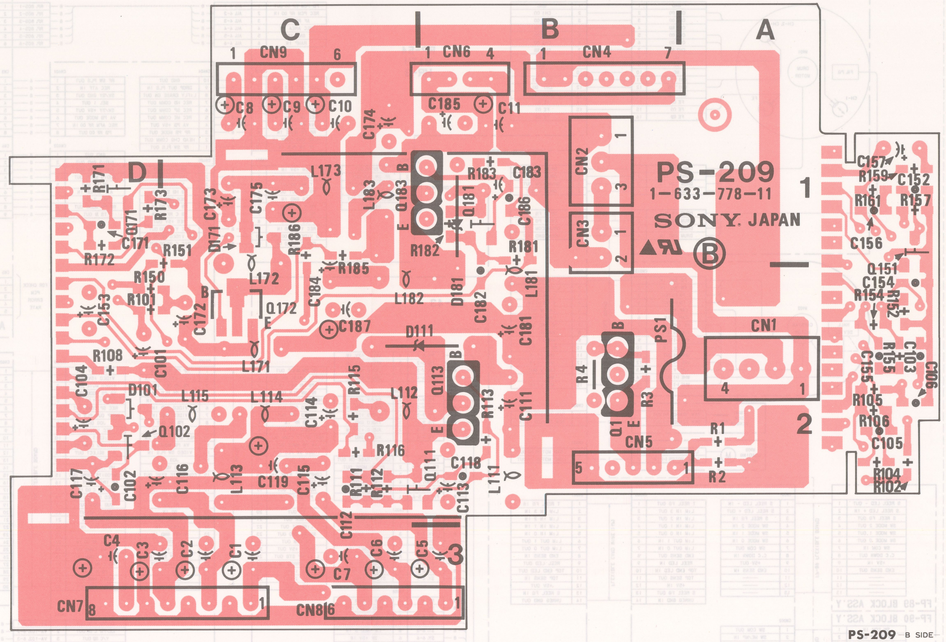
CN1	A-2
CN2	B-1
CN3	B-1
CN4	B-1
CN5	B-2
CN6	C-1
CN7	D-3
CN8	C-3
CN9	C-1
D111	B-2
D151	D-2
D152	D-1
D181	B1
IC101	A-2
IC151	A-2
PS1	A-2
Q1	B-2
Q2	B-2
Q113	B-2
Q152	D-1
Q183	B-2
RV101	A-2
RV111	C-2
RV221	D-1
RV241	C-2

PS-209(1-633-778-11) B SIDE

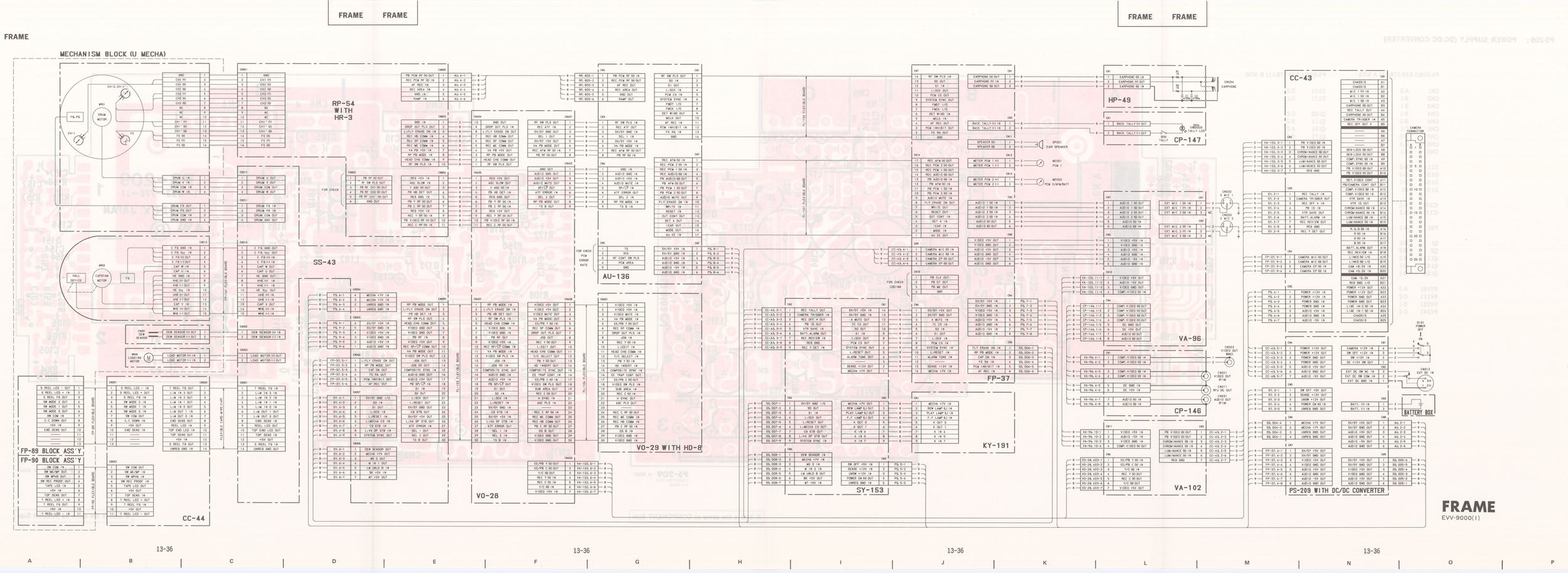
D101	D-2
D171	C-1
Q102	C-2
Q111	B-2
Q151	A-2
Q171	D-1
Q172	C-2
Q181	B-1



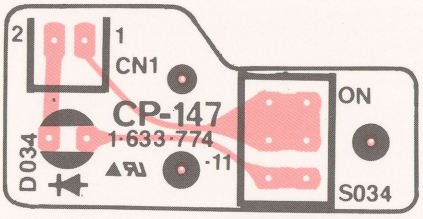
A Side is the same as COMPONENT Side



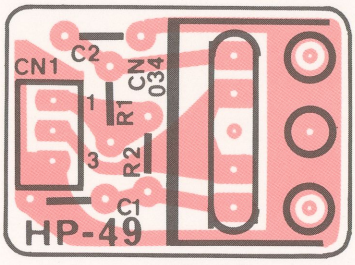
B Side is the same as SOLDER Side


FRAME
MECHANISM BLOCK (U MECHA)
RP-54 WITH HR-3
SS-43
AU-136
VO-29 WITH HD-8
VO-28
SY-153
KY-191
FP-37
VA-96
CP-146
VA-102
CP-147
HP-49
CC-43
PS-209 WITH DC/DC CONVERTER
FP-89 BLOCK ASS'Y
FP-90 BLOCK ASS'Y
CC-44
FRAME
EVV-9000(1)
13-36

CP-147 ; BACK TALLY LED
HP-49 ; EARPHONE JACK



CP-147 —A SIDE—
1-633-774-11(1)
EVV-9000



HP-49 —A SIDE—
1-633-776-11(1)
EVV-9000

A Side is the same as COMPONENT Side

CP-147 : BACK TALLY LED
HP-49 : EARPHONE JACK

CP-147 — A SIDE —

HP-49 — A SIDE —

A Side is the same as COMPONENT Side

SECTION 14
SPARE PART AND FIXTURE

14-1. PARTS INFORMATION

(1) The shaded and ⚠ -marked components are critical to safety.
Replace only with same components as specified.

(2) Replacement Parts supplied from the Sony Parts Center will sometimes have a different shape from the original parts. This is due to **improved parts and/or engineering changes** or **standardization of genuine parts.**
This manual's exploded views and electrical spare parts list indicate the part numbers of **the standardized genuine parts at the present.** Regarding engineering part changes by the engineering department, refer to Sony service bulletins and service manual supplements.

(3) The parts marked with **s** in the SP column of the exploded views and electrical spare parts lists are normally stocked for replacement purposes. The parts marked with **o** in the SP column are not normally required for routine service work. Orders for parts marked with **o** will be processed, but allow for additional delivery time.

(4) Items with no part number and/or no description are not stocked because they are seldom required for routine service.

(5) (T) after a spring description is shown on the exploded views in order to indicate the number of spring turns required for the use.
.Example
Spring, tension (24T); This spring must be cut at its 24th turn for actual use.

(6) All capacitors are in micro farads unless otherwise specified.
All inductors are in micro henries unless otherwise specified.
All resistors are in ohms.

14-2. EXPLODED VIEWS

. Exploded views are composed of the following blocks.

(1) Threading Drive Block
Coaster Blocks
Drive Gears
Threading Lever

(2) Reel Table Block and Tension Regulator
Tension Regulator Arm
Tension Regulator Band
S Reel Table
T Reel Table

(3) Head Drum and Cassette-up Compartment
Threading Motor (Loading)

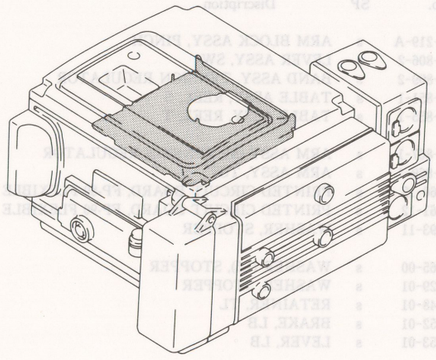
(4) Printed Circuit Boards (Mechanical Deck) and Chassis Block
RP Cover

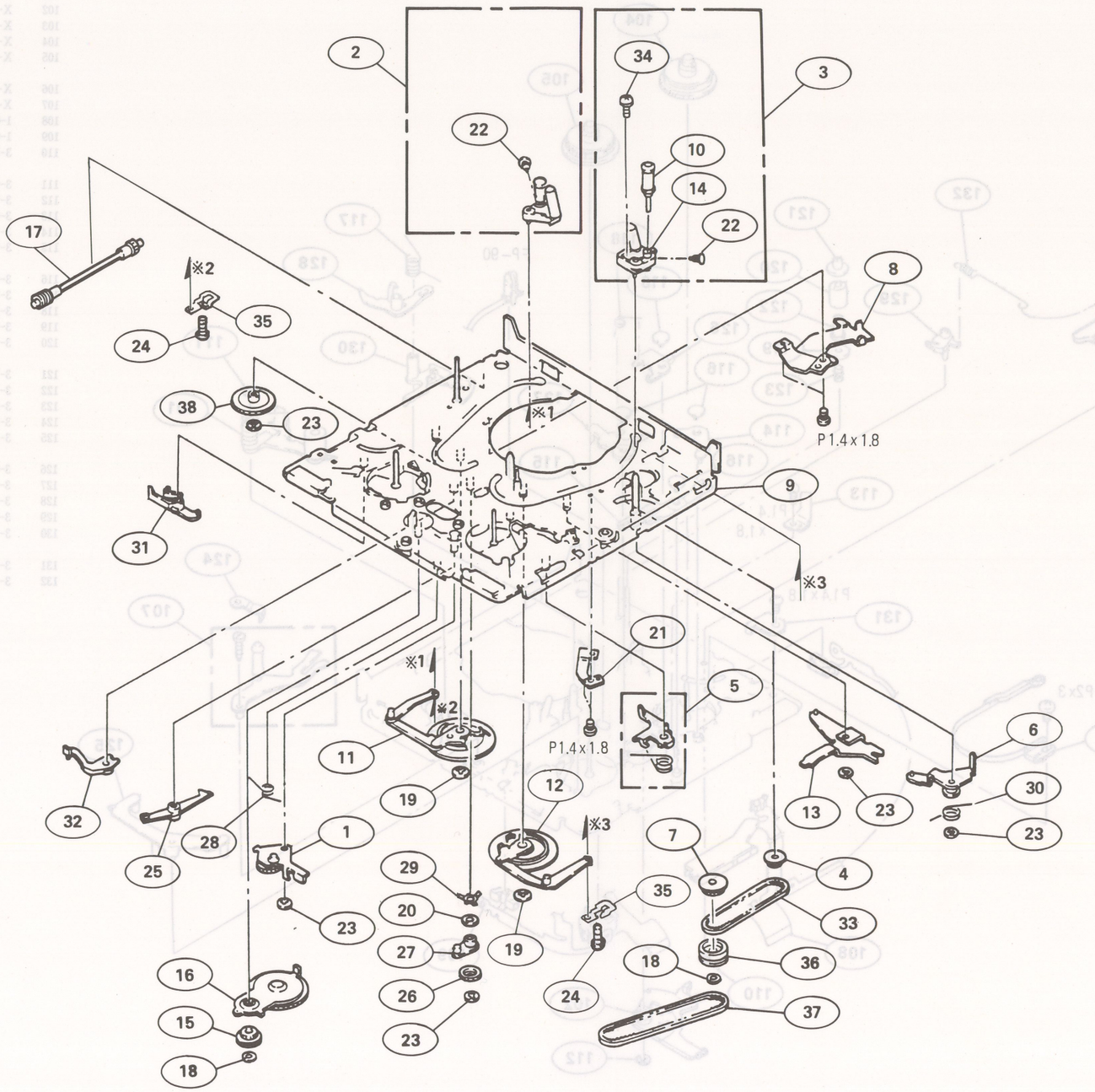
(5) Ornamental Block
Key Board
Side Plate (L)
Cassette Lid

(6) Display Panel Block
Switch Knob
Side Plate (R)
Slide Knob

(7) Battery Case and Connector Box

Threading Drive Block

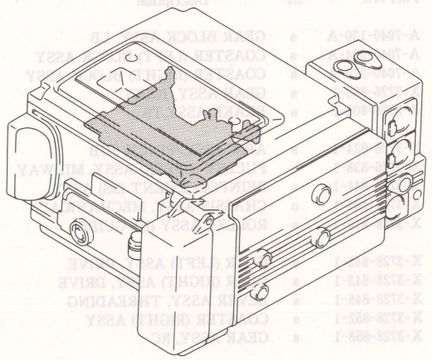


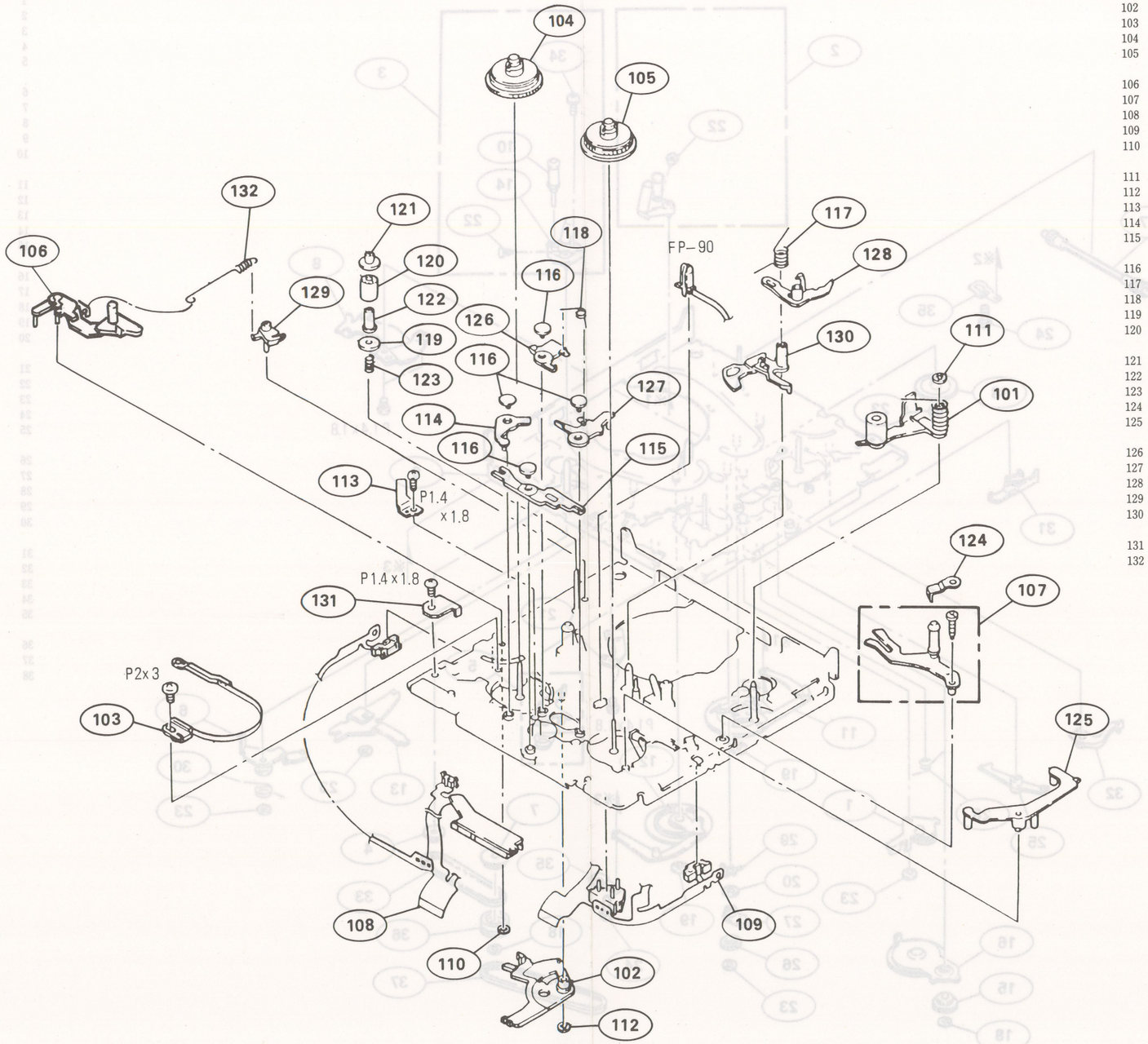


No.	Part No.	SP	Discription
1	A-7040-130-A	s	GEAR BLOCK ASSY, LB
2	A-7040-204-A	s	COASTER (LEFT) BLOCK ASSY
3	A-7040-220-A	s	COASTER (RIGHT) BLOCK ASSY
4	X-3726-805-1	s	GEAR ASSY, JOINT
5	X-3726-808-2	s	BRAKE ASSY,TS
6	X-3726-824-1	s	ARM ASSY, PINCH SUB
7	X-3726-838-1	s	PULLEY (UPPER) ASSY, MIDWAY
8	X-3726-841-1	s	REINFORCEMENT (SS) ASSY
9	X-3728-801-1	o	CHASSIS ASSY, MECHANICAL
10	X-3728-810-1	s	ROLLER ASSY (U), GUIDE
11	X-3728-842-1	s	GEAR (LEFT) ASSY, DRIVE
12	X-3728-843-1	s	GEAR (RIGHT) ASSY, DRIVE
13	X-3728-846-1	s	LEVER ASSY, THREADING
14	X-3728-852-1	s	COASTER (RIGHT) ASSY
15	X-3728-858-1	s	GEAR ASSY, RC
16	X-3728-866-1	s	GEAR ASSY, RK
17	X-3728-868-1	s	WORM ASSY
18	3-321-393-11	s	WASHER, STOPPER
19	3-669-465-00	s	WASHER (1.5), STOPPER
20	3-701-436-21	s	WASHER, POLYEHTHYLENE
21	3-726-805-01	o	REINFORCEMENT (TT)
22	3-726-822-01	s	SCREW (M1.4×2)(STEP), HEAD
23	3-726-829-01	s	WASHER, STOPPER
24	3-726-830-01	s	SCREW (M1.4×4)(THREE LOCK)
25	3-726-854-01	s	ARM, BRAKE RELEASE
26	3-726-856-02	s	GEAL, UL
27	3-726-857-02	s	ARM, UL
28	3-726-865-01	s	SPRING (LB), TORSION
29	3-726-867-01	s	SPRING, LEAF
30	3-726-895-01	s	SPRING
31	3-728-842-01	s	LEVER, EJECT
32	3-728-851-01	s	BRAKE, UL
33	3-728-866-11	s	BELT (S), TIMING
34	3-736-473-01	s	SCREW (W2)(THREE LOCK)
35	3-736-485-01	s	SPRING, LEAF
36	3-741-196-01	s	PULLEY (LOWER) BELT, MIDWAY
37	3-741-197-01	s	BELT (L), TIMING
38	3-744-109-01	s	GEAR, WHEEL

REEL TABLE BLOCK AND TENSION REGULATOR

Reel Table Block and Tension Regulator



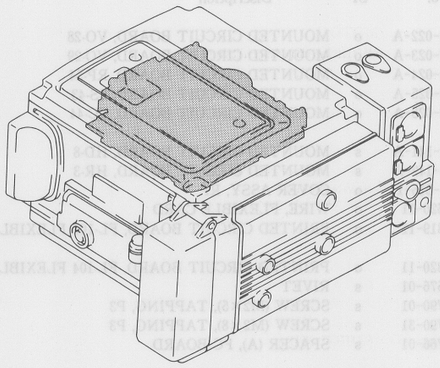


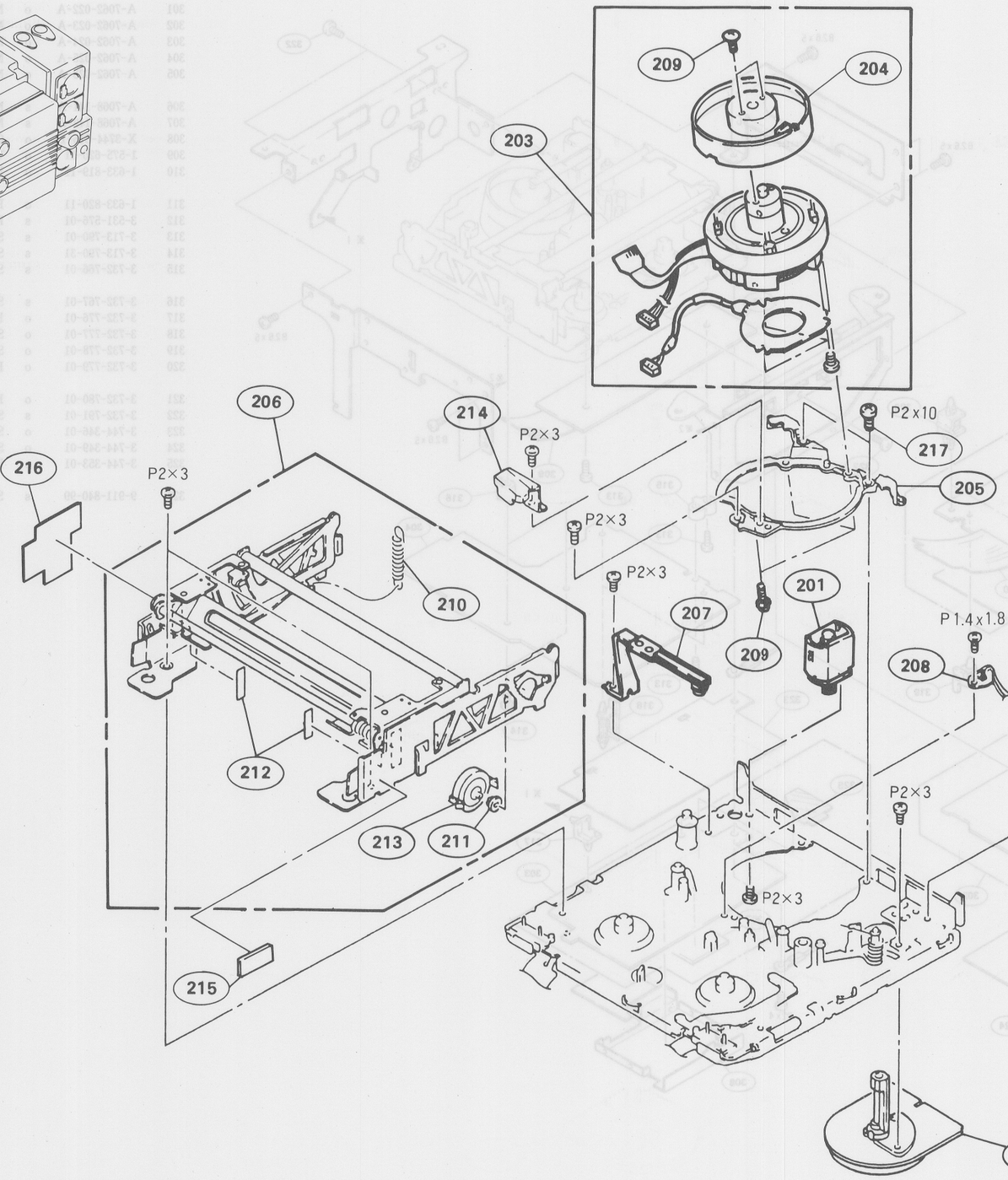
No.	Part No.	SP	Discription
101	A-7040-219-A	s	ARM BLOCK ASSY, PINCH
102	X-3726-806-2	s	LEVER ASSY, SW
103	X-3726-809-2	s	BAND ASSY, TENSION REGULATOR
104	X-7328-851-1	s	TABLE ASSY, REEL, S
105	X-3728-855-1	s	TABLE ASSY, REEL, T
106	X-3728-867-1	s	ARM ASSY (S), TENSION REGULATOR
107	X-3728-869-1	s	ARM ASSY, TG7
108	1-628-060-12	s	PRINTED CIRCUIT BOARD, FP-89 FLEXIBLE
109	1-628-061-12	s	PRINTED CIRCUIT BOARD, FP-90 FLEXIBLE
110	3-321-393-11	s	WASHER, STOPPER
111	3-699-465-00	s	WASHER (1.5), STOPPER
112	3-726-829-01	s	WASHER, STOPPER
113	3-726-848-01	s	RETAINER, TL
114	3-726-852-01	s	BRAKE, LB
115	3-726-853-01	s	LEVER, LB
116	3-726-858-01	s	PIN, SHAFT RETAINER
117	3-726-864-01	s	SPRING (RK),TORSION
118	3-726-866-01	s	SPRING (ST), TORSION
119	3-726-882-02	s	FLANGE, LOWER, TG2
120	3-726-883-01	s	ROLLER, TG2
121	3-726-884-01	s	FLANGE, UPPER, TG2
122	3-726-885-01	s	SLEEVE, TG2
123	3-726-886-01	s	SPRING, COMPRESSION
124	3-728-808-01	s	SPRING, LEAF
125	3-728-848-01	s	ARM, LB RELEASE
126	3-728-849-01	s	BRAKE, S
127	3-728-850-01	s	BRAKE, T
128	3-728-852-02	s	ARM, RK STOPPER
129	3-728-855-03	s	ARM, ADJUSTMENT
130	3-728-875-01	s	STOPPER, RK
131	3-730-125-01	s	RETAINER, SW
132	3-736-414-01	s	SPRING, TENSION

14-4

HEAD DRUM AND CASSETTE-UP COMPARTMENT

Head Drum and Cassette-Up Compartment



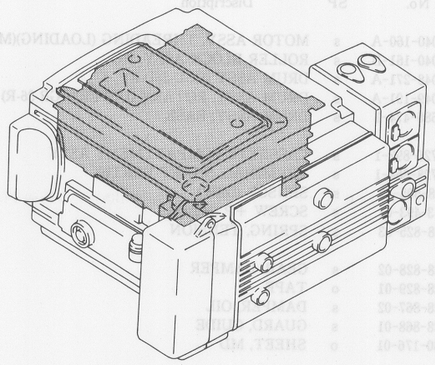


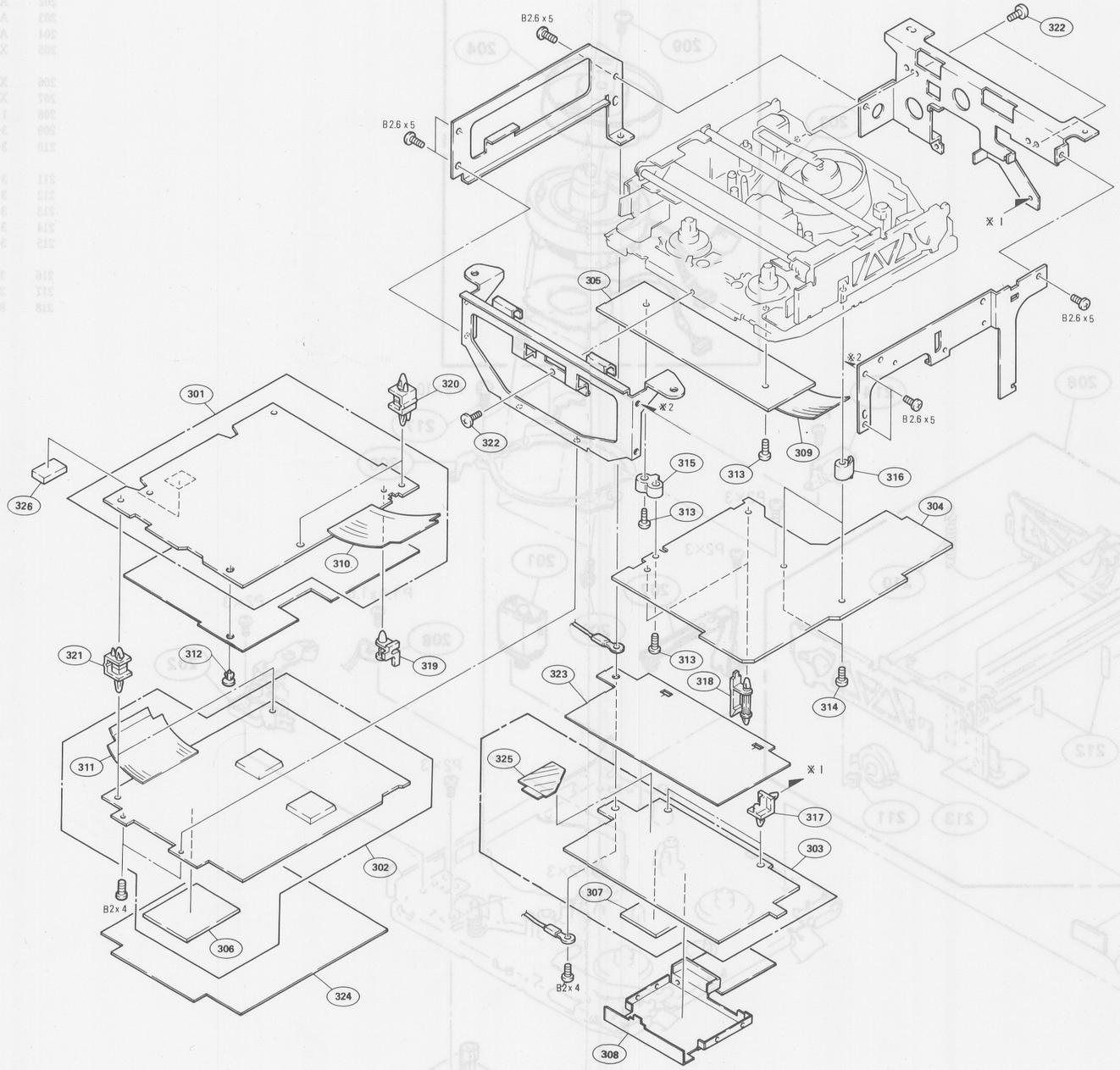
No.	Part No.	SP	Discription
201	A-7040-160-A	s	MOTOR ASSY, THREADING (LOADING)(M903)
202	A-7040-161-B	s	ROLLER BLOCK ASSY, HC
203	A-7048-271-A	s	DRUM ASSY (DGU-36D-R)
204	A-7049-191-A	s	DRUM ASSY, ROTARY (UPPER)(DGR-36-R)
205	X-3686-474-1	s	DRUM ASSY, BASE
206	X-3726-892-1	s	CASSETTE COMPARTMENT ASSY
207	X-3728-864-1	s	TERMINAL, SHAFT EARTH
208	1-808-505-12	s	SENSOR (DEW)
209	3-683-493-01	s	SCREW +P (M2×5)
210	3-728-825-03	s	SPRING, TENSION
211	3-728-828-02	s	GEAR, DAMPER
212	3-728-829-01	o	TAPE
213	3-728-867-02	s	DAMPER, OIL
214	3-728-868-01	s	GUARD, GUIDE
215	3-730-176-01	o	SHEET, MD
216	3-734-475-02	o	PLATE, BLIND, M
217	3-736-406-01	s	SCREW (3)(+P2×10)
218	8-835-331-01	s	MOTOR, DC U-22A

14-5

PRINTED CIRCUIT BOARDS AND CHASSIS BLOCK

Printed Circuit Boards and Chassis Block

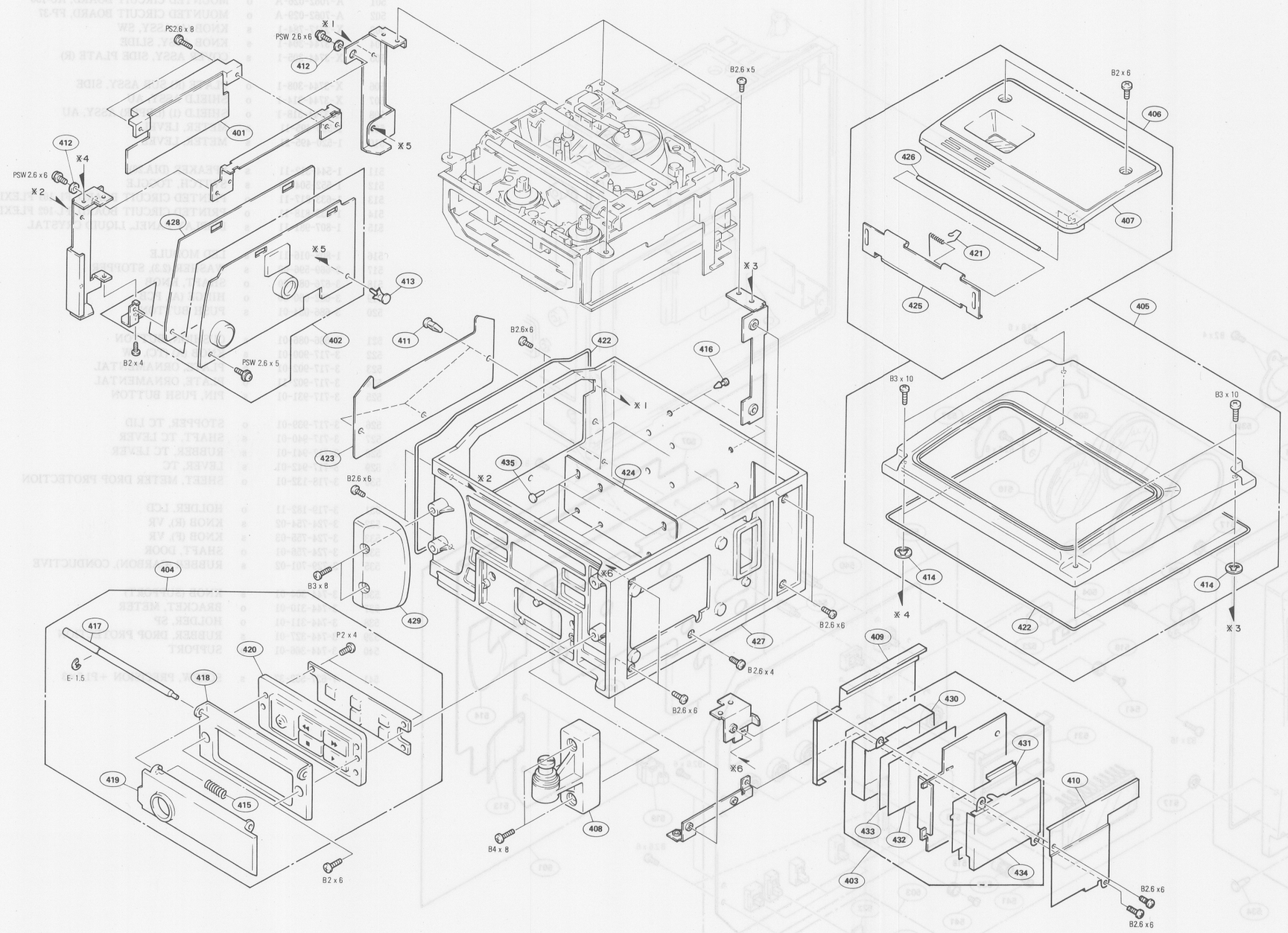


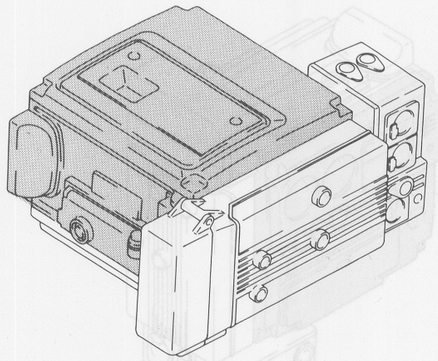


No.	Part No.	SP	Discription
301	A-7062-022-A	o	MOUNTED CIRCUIT BOARD, VO-28
302	A-7062-023-A	o	MOUNTED CIRCUIT BOARD, VO-29
303	A-7062-024-A	o	MOUNTED CIRCUIT BOARD, RP-54
304	A-7062-025-A	o	MOUNTED CIRCUIT BOARD, SS-43
305	A-7062-028-A	o	MOUNTED CIRCUIT BOARD, CC-44
306	A-7068-141-A	s	MOUNTED CIRCUIT BOARD, HD-8
307	A-7068-142-A	s	MOUNTED CIRCUIT BOARD, HR-3
308	X-3744-315-1	o	COVER ASSY, RP
309	1-575-620-11	o	WIRE, FLEXIBLE CARD
310	1-633-819-11	o	PRINTED CIRCUIT BOARD, FL-103 FLEXIBLE
311	1-633-820-11	o	PRINTED CIRCUIT BOARD, FL-104 FLEXIBLE
312	3-531-576-01	s	RIVET
313	3-713-790-01	s	SCREW (M2×5), TAPPING, P3
314	3-713-790-31	s	SCREW (M2×8), TAPPING, P3
315	3-732-766-01	s	SPACER (A), PC BOARD
316	3-732-767-01	s	SPACER (B), PC BOARD
317	3-732-776-01	o	HINGE (C), PC BOARD
318	3-732-777-01	o	SUPPORT (A), PC BOARD
319	3-732-778-01	o	SUPPORT (B), PC BOARD
320	3-732-779-01	o	HINGE (A), PC BOARD
321	3-732-780-01	o	HINGE (B), PC BOARD
322	3-732-791-01	s	SCREW (M2×3)
323	3-744-346-01	o	SHEET, INSULATING, RP
324	3-744-349-01	o	SHIELD, VO
325	3-744-353-01	o	PLATE, SHIELD, D.F
326	9-911-840-99	s	SPACER (D)

14-6

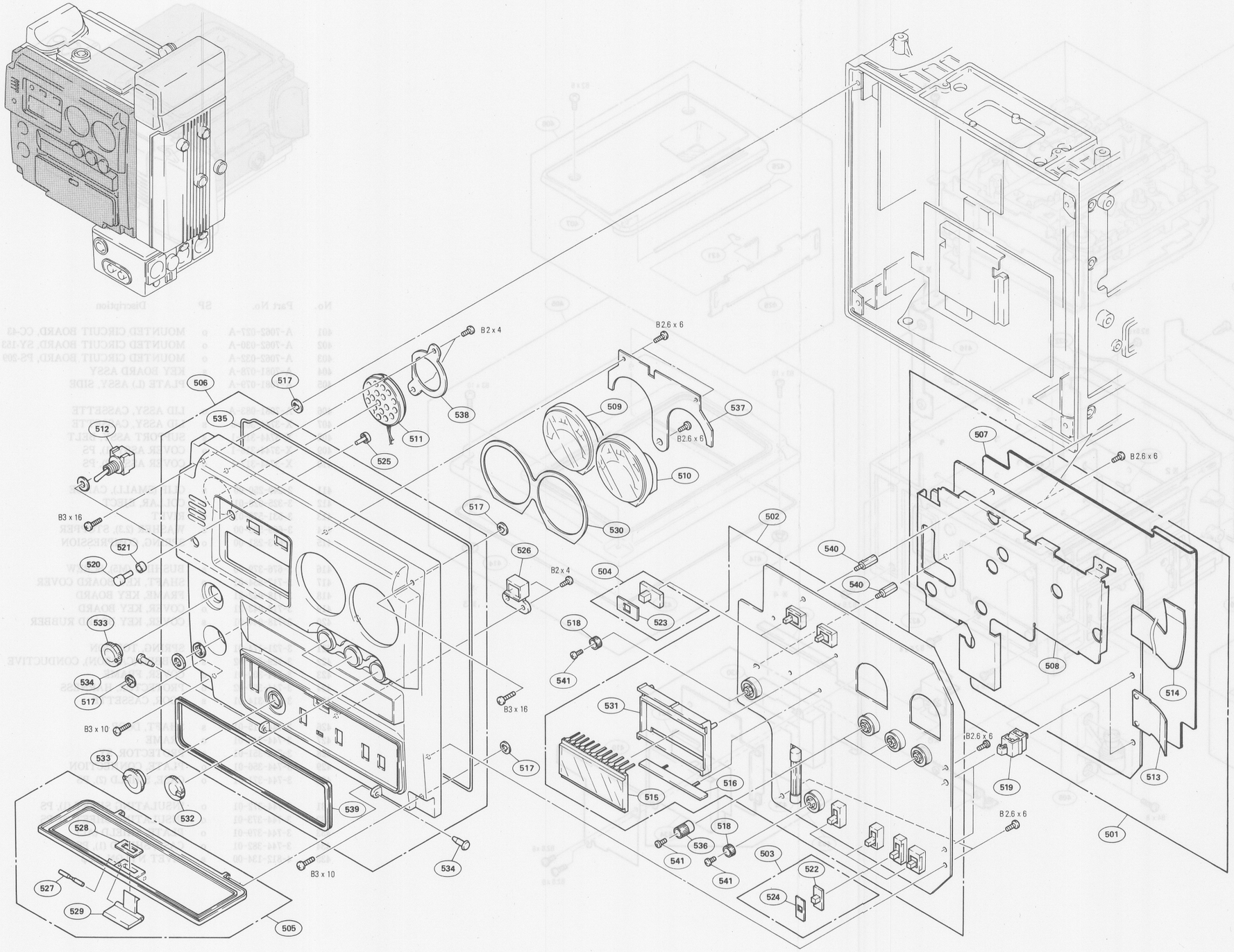
Ornamental Block





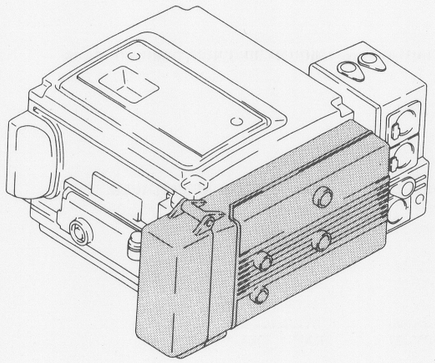
No.	Part No.	SP	Discription
401	A-7062-027-A	o	MOUNTED CIRCUIT BOARD, CC-43
402	A-7062-030-A	o	MOUNTED CIRCUIT BOARD, SY-153
403	A-7062-032-A	o	MOUNTED CIRCUIT BOARD, PS-209
404	A-7081-078-A	s	KEY BOARD ASSY
405	A-7081-079-A	o	PLATE (L) ASSY, SIDE
406	A-7081-083-A	o	LID ASSY, CASSETTE
407	X-3744-302-5	s	LID ASSY, CASSETTE
408	X-3744-310-1	s	SUPPORT ASSY, BELT
409	X-3744-316-1	o	COVER ASSY (1), PS
410	X-3744-317-1	o	COVER ASSY (2), PS
411	2-249-250-00	s	CLIP (SMALL), CANOE
412	3-325-028-01	s	COLLAR, EJECT
413	3-531-576-01	s	RIVET
414	3-669-596-00	s	WASHER (2.3), STOPPER
415	3-673-281-00	o	SPRING, COMPRESSION
416	3-676-379-00	s	BUSHING (M5), SCREW
417	3-717-854-01	o	SHAFT, KEY BOARD COVER
418	3-718-042-21	o	FRAME, KEY BOARD
419	3-718-043-21	o	COVER, KEY BOARD
420	3-718-044-01	s	COVER, KEY BOARD RUBBER
421	3-721-174-01	s	SPRING, TORSION
422	3-729-701-02	s	RUBBER (CARBON), CONDUCTIVE
423	3-744-302-01	o	COVER, FRAME
424	3-744-307-02	o	PROTECTOR, HARNESS
425	3-744-314-01	s	DOOR, CASSETTE
426	3-744-315-01	s	SHAFT, DOOR
427	3-744-343-01	o	FRAME
428	3-744-351-01	o	PROTECTOR, SY
429	3-744-356-01	o	PLATE, CONNECTION
430	3-744-371-01	o	CASE, SHIELD (2), PS
431	3-744-372-01	o	INSULATING SHEET (1), PS
432	3-744-373-01	o	INSULATING SHEET (2), PS
433	3-744-379-01	o	PLATE, SHIELD (AL)
434	3-744-382-01	o	CASE, SHIELD (1), PS
435	4-812-134-00	s	RIVET NYLON, 3.5ϕ

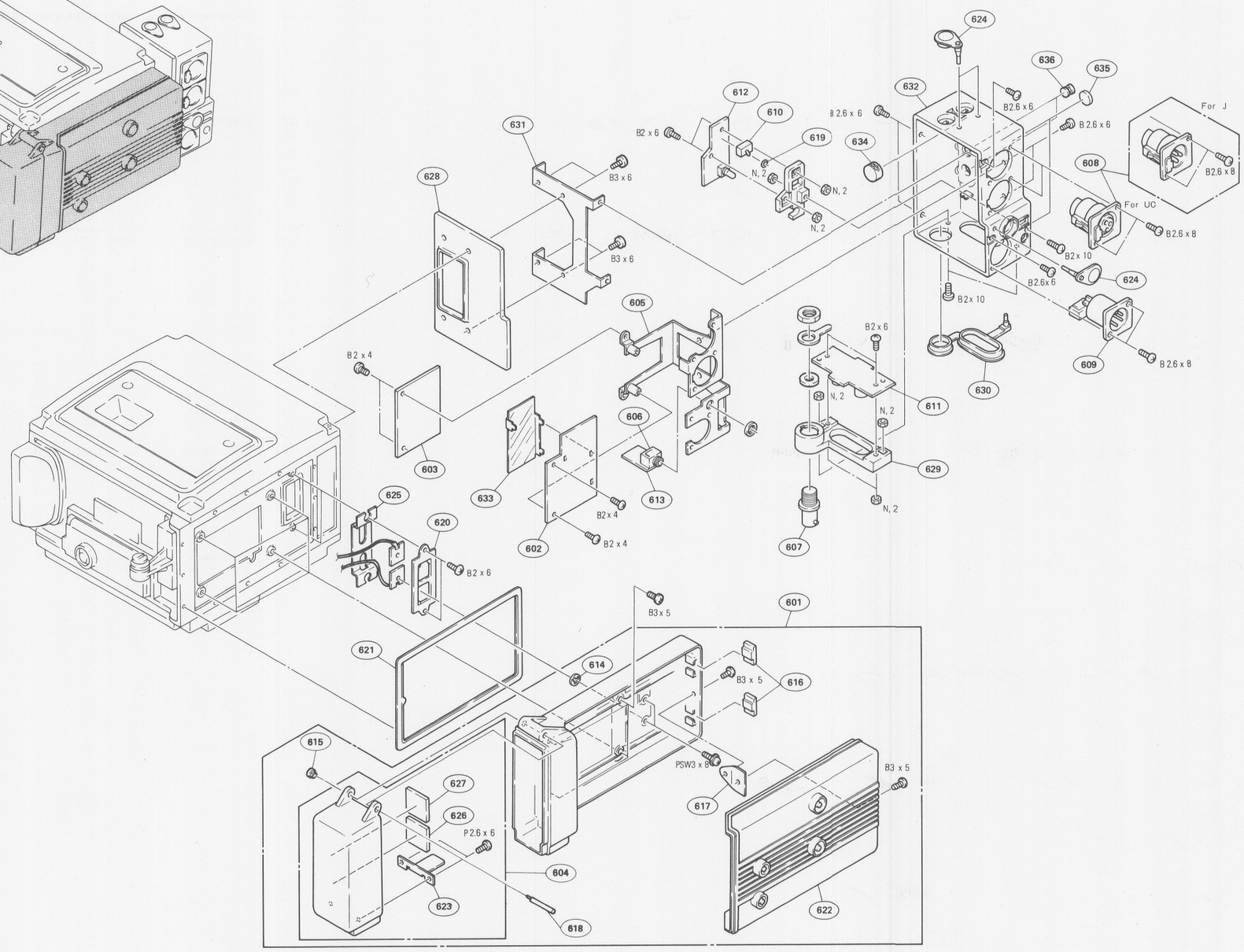
Display Panel Block



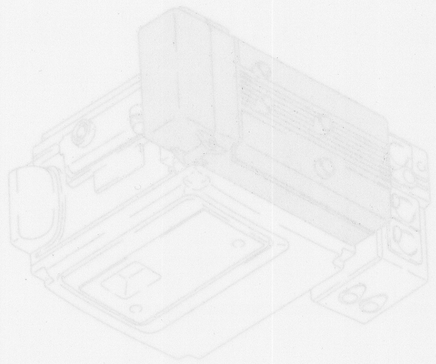
No.	Part No.	SP	Discription
501	A-7062-026-A	o	MOUNTED CIRCUIT BOARD, AU-136
502	A-7062-029-A	o	MOUNTED CIRCUIT BOARD, FP-37
503	X-3717-784-1	s	KNOB (A) ASSY, SW
504	X-3744-304-1	s	KNOB ASSY, SLIDE
505	X-3744-305-1	s	COVER ASSY, SIDE PLATE (R)
506	X-3744-308-1	o	PLATE (R) SUB ASSY, SIDE
507	X-3744-314-1	o	SHIELD ASSY, AU
508	X-3744-318-1	o	SHIELD (1) (UPPER) ASSY, AU
509	1-520-495-11	s	METER, LEVEL
510	1-520-495-21	s	METER, LEVEL
511	1-544-312-11	s	SPEAKER (DIA.20)
512	1-552-504-00	s	SWITCH, TOGGLE
513	1-633-817-11	o	PRINTED CIRCUIT BOARD, FL-101 FLEXIBLE
514	1-633-818-11	o	PRINTED CIRCUIT BOARD, FL-102 FLEXIBLE
515	1-807-981-11	s	DISPLAY PANEL, LIQUID CRYSTAL
516	1-808-016-11	s	LED MODULE
517	3-669-596-00	s	WASHER (2.3), STOPPER
518	3-676-088-00	o	SHAFT, KNOB
519	3-682-080-00	o	HINGE (A), PCB
520	3-686-084-01	s	PUSH BUTTON
521	3-686-086-01	s	CUSHION, BUTTON
522	3-717-900-01	s	KNOB (A) (TC), SW
523	3-717-902-01	o	PLATE, ORNAMENTAL
524	3-717-902-11	o	PLATE, ORNAMENTAL
525	3-717-931-01	s	PIN, PUSH BUTTON
526	3-717-939-01	o	STOPPER, TC LID
527	3-717-940-01	s	SHAFT, TC LEVER
528	3-717-941-01	s	RUBBER, TC LEVER
529	3-717-942-01	s	LEVER, TC
530	3-718-132-01	o	SHEET, METER DROP PROTECTION
531	3-719-182-11	o	HOLDER, LCD
532	3-724-754-02	s	KNOB (R), VR
533	3-724-755-03	s	KNOB (F), VR
534	3-724-756-01	o	SHAFT, DOOR
535	3-729-701-02	s	RUBBER (CARBON), CONDUCTIVE
536	3-744-304-01	s	KNOB (SUPPORT)
537	3-744-310-01	o	BRACKET, METER
538	3-744-311-01	o	HOLDER, SP
539	3-744-327-01	s	RUBBER, DROP PROTECTION
540	3-744-366-01	o	SUPPORT
541	7-627-552-37	s	SCREW, PRECISION +P1.7×3

Battery Case and Connector Box





No.	Part No.	SP	Discription
601	A-6703-651-C	s	CASE ASSY, BATTERY
602	A-7062-031-A	o	MOUNTED CIRCUIT BOARD, VA-96
603	A-7062-107-A	o	MOUNTED CIRCUIT BOARD, VA-102
604	A-3717-701-3	o	COVER ASSY, TOP, BATTERY
605	X-3744-306-1	o	CHASSIS ASSY, C.B
606	1-507-980-11	o	JACK
607	1-561-781-11	s	CONNECTOR, BNC (RECEPTACLE)
608	1-563-029-21	o	CONNECTOR, (RECEPTACLE) 3P
609	1-564-603-11	s	CONNECTOR, (WITH DC SW) 4P
610	1-570-608-11	s	SWITCH, TOGGLE
611	1-633-773-11	o	PRINTED CIRCUIT BOARD, CP-146
612	1-633-774-11	o	PRINTED CIRCUIT BOARD, CP-147
613	1-633-776-11	o	PRINTED CIRCUIT BOARD, HP-49
614	3-669-596-00	s	WASHER (2.3), STOPPER
615	3-703-075-00	s	CAP 2, SHAFT
616	3-717-707-02	o	CUSHION (2)
617	3-717-708-01	o	RETAINER, CASE
618	3-717-709-01	o	SHAFT, LID
619	3-717-825-01	o	RING, O
620	3-718-028-01	o	HOLDER, TERMINAL
621	3-718-032-01	s	SHEET, RUBBER, DROP PROTECTION
622	3-718-040-01	o	COVER (1), BATTERY CASE
623	3-718-172-01	o	RETAINER, HOOK
624	3-724-730-02	s	RUBBER (EA), DROP PROTECTION
625	3-729-009-03	o	INSULATOR (BATT)
626	3-729-720-01	o	CUSHION (LEFT)
627	3-729-721-01	o	CUSHION (RIGHT)
628	3-744-326-01	o	COVER, C BOX
629	3-744-333-01	o	HOLDER, PIN JACK
630	3-744-334-01	s	RUBBER (PJ), DROP PROTECTION
631	3-744-337-01	o	COVER (SUPPORT), C BOX
632	3-744-342-01	o	BOX, C
633	3-744-352-01	o	SHIELD, VA
634	3-744-365-01	o	FILTER
635	4-872-529-00	s	FOOT, RUBBER
636	4-887-737-01	s	CAP, RUBBER



Battery Case and Connector Box

CAPACITOR, CHIP CERAMIC

Part No.	SP	Description			
1-163-083-00	s	CAP, CHIP CERAMIC	1pF	+-0.25pF	50V
1-163-085-00	s	CAP, CHIP CERAMIC	2pF	+-0.25pF	50V
1-163-087-00	s	CAP, CHIP CERAMIC	4pF	+-0.25pF	50V
1-163-089-00	s	CAP, CHIP CERAMIC	6pF	+-0.5pF	50V
1-163-091-00	s	CAP, CHIP CERAMIC	8pF	+-0.5pF	50V
1-163-093-00	s	CAP, CHIP CERAMIC	10pF	5%	50V
1-163-097-00	s	CAP, CHIP CERAMIC	15pF	5%	50V
1-163-101-00	s	CAP, CHIP CERAMIC	22pF	5%	50V
1-163-105-00	s	CAP, CHIP CERAMIC	33pF	5%	50V
1-163-109-00	s	CAP, CHIP CERAMIC	47pF	5%	50V
1-163-113-00	s	CAP, CHIP CERAMIC	68pF	5%	50V
1-163-117-00	s	CAP, CHIP CERAMIC	100pF	5%	50V
1-163-121-00	s	CAP, CHIP CERAMIC	150pF	5%	50V
1-163-125-00	s	CAP, CHIP CERAMIC	220pF	5%	50V
1-163-129-00	s	CAP, CHIP CERAMIC	330pF	5%	50V
1-163-133-00	s	CAP, CHIP CERAMIC	470pF	5%	50V
1-163-137-00	s	CAP, CHIP CERAMIC	680pF	5%	50V
1-163-141-00	s	CAP, CHIP CERAMIC	1000pF	5%	50V
1-163-145-00	s	CAP, CHIP CERAMIC	1500pF	10%	50V
1-163-013-00	s	CAP, CHIP CERAMIC	2200pF	10%	50V
1-163-015-00	s	CAP, CHIP CERAMIC	3300pF	10%	50V
1-163-017-00	s	CAP, CHIP CERAMIC	4700pF	10%	50V
1-163-019-00	s	CAP, CHIP CERAMIC	6800pF	10%	50V
1-163-021-00	s	CAP, CHIP CERAMIC	0.01	10%	50V
1-163-023-00	s	CAP, CHIP CERAMIC	0.015	10%	50V
1-163-034-00	s	CAP, CHIP CERAMIC	0.033		50V
1-163-035-00	s	CAP, CHIP CERAMIC	0.047		50V
1-163-036-00	s	CAP, CHIP CERAMIC	0.068		50V
1-163-038-00	s	CAP, CHIP CERAMIC	0.1		50V

CAPACITOR, CHIP TANTALUM

Part No.	SP	Description			
1-135-070-00	s	CAP, CHIP TANTALUM	0.1	10%	35V
1-135-071-21	s	CAP, CHIP TANTALUM	0.15	10%	35V
1-135-072-21	s	CAP, CHIP TANTALUM	0.22	10%	35V
1-135-073-00	s	CAP, CHIP TANTALUM	0.33	10%	35V
1-135-083-00	s	CAP, CHIP TANTALUM	0.47	10%	25V
1-135-074-21	s	CAP, CHIP TANTALUM	0.47	10%	35V
1-135-087-21	s	CAP, CHIP TANTALUM	0.68	10%	20V
1-135-075-21	s	CAP, CHIP TANTALUM	0.68	10%	35V
1-135-091-21	s	CAP, CHIP TANTALUM	1.0	10%	16V
1-135-076-21	s	CAP, CHIP TANTALUM	1.0	10%	35V
1-135-084-21	s	CAP, CHIP TANTALUM	1.5	10%	25V
1-135-077-21	s	CAP, CHIP TANTALUM	1.5	10%	35V
1-135-088-21	s	CAP, CHIP TANTALUM	2.2	10%	20V
1-135-078-21	s	CAP, CHIP TANTALUM	2.2	10%	35V
1-135-092-21	s	CAP, CHIP TANTALUM	3.3	10%	16V
1-135-079-21	s	CAP, CHIP TANTALUM	3.3	10%	35V
1-135-096-21	s	CAP, CHIP TANTALUM	4.7	10%	10V
1-135-085-21	s	CAP, CHIP TANTALUM	4.7	10%	25V
1-135-100-21	s	CAP, CHIP TANTALUM	6.8	10%	6.3V
1-135-089-21	s	CAP, CHIP TANTALUM	6.8	10%	20V
1-135-093-21	s	CAP, CHIP TANTALUM	10	10%	16V
1-135-097-21	s	CAP, CHIP TANTALUM	15	10%	10V
1-135-101-21	s	CAP, CHIP TANTALUM	22	10%	6.3V
1-135-098-21	s	CAP, CHIP TANTALUM	47	10%	6.3V

RESISTOR, CHIP

(RESISTOR, CHIP)

Part No.	SP	Description
1-216-295-00	s	RES, CHIP 0 5% 1/10W
1-216-298-00	s	RES, CHIP 2.2 5% 1/10W
1-216-302-00	s	RES, CHIP 2.7 5% 1/10W
1-216-304-00	s	RES, CHIP 3.3 5% 1/10W
1-216-306-00	s	RES, CHIP 3.9 5% 1/10W
1-216-308-00	s	RES, CHIP 4.7 5% 1/10W
1-216-309-00	s	RES, CHIP 5.6 5% 1/10W
1-216-311-00	s	RES, CHIP 6.8 5% 1/10W
1-216-313-00	s	RES, CHIP 8.2 5% 1/10W
1-216-001-00	s	RES, CHIP 10 5% 1/10W
1-216-003-00	s	RES, CHIP 12 5% 1/10W
1-216-005-00	s	RES, CHIP 15 5% 1/10W
1-216-007-00	s	RES, CHIP 18 5% 1/10W
1-216-009-00	s	RES, CHIP 22 5% 1/10W
1-216-011-00	s	RES, CHIP 27 5% 1/10W
1-216-013-00	s	RES, CHIP 33 5% 1/10W
1-216-015-00	s	RES, CHIP 39 5% 1/10W
1-216-017-00	s	RES, CHIP 47 5% 1/10W
1-216-019-00	s	RES, CHIP 56 5% 1/10W
1-216-021-00	s	RES, CHIP 68 5% 1/10W
1-216-023-00	s	RES, CHIP 82 5% 1/10W
1-216-025-00	s	RES, CHIP 100 5% 1/10W
1-216-027-00	s	RES, CHIP 120 5% 1/10W
1-216-029-00	s	RES, CHIP 150 5% 1/10W
1-216-031-00	s	RES, CHIP 180 5% 1/10W
1-216-033-00	s	RES, CHIP 220 5% 1/10W
1-216-035-00	s	RES, CHIP 270 5% 1/10W
1-216-037-00	s	RES, CHIP 330 5% 1/10W
1-216-039-00	s	RES, CHIP 390 5% 1/10W
1-216-041-00	s	RES, CHIP 470 5% 1/10W
1-216-043-00	s	RES, CHIP 560 5% 1/10W
1-216-045-00	s	RES, CHIP 680 5% 1/10W
1-216-047-00	s	RES, CHIP 820 5% 1/10W
1-216-049-00	s	RES, CHIP 1k 5% 1/10W
1-216-051-00	s	RES, CHIP 1.2k 5% 1/10W
1-216-053-00	s	RES, CHIP 1.5k 5% 1/10W
1-216-055-00	s	RES, CHIP 1.8k 5% 1/10W
1-216-057-00	s	RES, CHIP 2.2k 5% 1/10W
1-216-059-00	s	RES, CHIP 2.7k 5% 1/10W
1-216-061-00	s	RES, CHIP 3.3k 5% 1/10W
1-216-063-00	s	RES, CHIP 3.9k 5% 1/10W
1-216-065-00	s	RES, CHIP 4.7k 5% 1/10W
1-216-067-00	s	RES, CHIP 5.6k 5% 1/10W
1-216-069-00	s	RES, CHIP 6.8k 5% 1/10W
1-216-071-00	s	RES, CHIP 8.2k 5% 1/10W
1-216-073-00	s	RES, CHIP 10k 5% 1/10W
1-216-075-00	s	RES, CHIP 12k 5% 1/10W
1-216-077-00	s	RES, CHIP 15k 5% 1/10W
1-216-079-00	s	RES, CHIP 18k 5% 1/10W
1-216-081-00	s	RES, CHIP 22k 5% 1/10W
1-216-083-00	s	RES, CHIP 27k 5% 1/10W
1-216-085-00	s	RES, CHIP 33k 5% 1/10W
1-216-087-00	s	RES, CHIP 39k 5% 1/10W
1-216-089-00	s	RES, CHIP 47k 5% 1/10W
1-216-091-00	s	RES, CHIP 56k 5% 1/10W
1-216-093-00	s	RES, CHIP 68k 5% 1/10W
1-216-095-00	s	RES, CHIP 82k 5% 1/10W
1-216-097-00	s	RES, CHIP 100k 5% 1/10W
1-216-099-00	s	RES, CHIP 120k 5% 1/10W
1-216-101-00	s	RES, CHIP 150k 5% 1/10W
1-216-103-00	s	RES, CHIP 180k 5% 1/10W
1-216-105-00	s	RES, CHIP 220k 5% 1/10W
1-216-107-00	s	RES, CHIP 270k 5% 1/10W
1-216-109-00	s	RES, CHIP 330k 5% 1/10W
1-216-111-00	s	RES, CHIP 390k 5% 1/10W
1-216-113-00	s	RES, CHIP 470k 5% 1/10W
1-216-115-00	s	RES, CHIP 560k 5% 1/10W
1-216-117-00	s	RES, CHIP 680k 5% 1/10W
1-216-119-00	s	RES, CHIP 820k 5% 1/10W
1-216-121-00	s	RES, CHIP 1.0M 5% 1/10W
1-216-123-00	s	RES, CHIP 1.2M 5% 1/10W
1-216-125-00	s	RES, CHIP 1.5M 5% 1/10W
1-216-127-00	s	RES, CHIP 1.8M 5% 1/10W
1-216-129-00	s	RES, CHIP 2.2M 5% 1/10W
1-216-131-00	s	RES, CHIP 2.7M 5% 1/10W
1-216-133-00	s	RES, CHIP 3.3M 5% 1/10W

CONNECTOR

Part No.	SP	Description
1-506-467-11	o	RECEPTACLE 2P MALE (STRAIGHT TYPE)
1-506-481-11	o	RECEPTACLE 2P MALE (ANGLE TYPE)
1-562-147-11	o	HOUSING 2P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-468-11	o	RECEPTACLE 3P MALE (STRAIGHT TYPE)
1-506-482-11	o	RECEPTACLE 3P MALE (ANGLE TYPE)
1-562-148-11	o	HOUSING 3P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-469-11	o	RECEPTACLE 4P MALE (STRAIGHT TYPE)
1-506-483-21	o	RECEPTACLE 4P MALE (ANGLE TYPE)
1-562-149-11	o	HOUSING 4P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-470-11	o	RECEPTACLE 5P MALE (STRAIGHT TYPE)
1-506-484-11	o	RECEPTACLE 5P MALE (ANGLE TYPE)
1-562-150-11	o	HOUSING 5P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-471-31	o	RECEPTACLE 6P MALE (STRAIGHT TYPE)
1-506-485-11	o	RECEPTACLE 6P MALE (ANGLE TYPE)
1-562-151-11	o	HOUSING 6P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-472-11	o	RECEPTACLE 7P MALE (STRAIGHT TYPE)
1-506-486-11	o	RECEPTACLE 7P MALE (ANGLE TYPE)
1-562-152-11	o	HOUSING 7P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-473-11	o	RECEPTACLE 8P MALE (STRAIGHT TYPE)
1-506-487-11	o	RECEPTACLE 8P MALE (ANGLE TYPE)
1-562-153-11	o	HOUSING 8P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-474-11	o	RECEPTACLE 9P MALE (STRAIGHT TYPE)
1-506-488-11	o	RECEPTACLE 9P MALE (ANGLE TYPE)
1-562-154-11	o	HOUSING 9P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-475-11	o	RECEPTACLE 10P MALE (STRAIGHT TYPE)
1-506-489-11	o	RECEPTACLE 10P MALE (ANGLE TYPE)
1-562-155-11	o	HOUSING 10P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-476-11	o	RECEPTACLE 11P MALE (STRAIGHT TYPE)
1-506-490-21	o	RECEPTACLE 11P MALE (ANGLE TYPE)
1-562-156-11	o	HOUSING 11P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-477-11	o	RECEPTACLE 12P MALE (STRAIGHT TYPE)
1-506-491-11	o	RECEPTACLE 12P MALE (ANGLE TYPE)
1-562-157-11	o	HOUSING 12P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-478-11	o	RECEPTACLE 13P MALE (STRAIGHT TYPE)
1-506-492-11	o	RECEPTACLE 13P MALE (ANGLE TYPE)
1-562-627-11	o	HOUSING 13P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32

(CONNECTOR)

Part No.	SP	Description
1-506-479-11	o	RECEPTACLE 14P MALE (STRAIGHT TYPE)
1-506-493-11	o	RECEPTACLE 14P MALE (ANGLE TYPE)
1-562-185-11	o	HOUSING 14P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-480-11	o	RECEPTACLE 15P MALE (STRAIGHT TYPE)
1-506-494-11	o	RECEPTACLE 15P MALE (ANGLE TYPE)
1-562-958-11	o	HOUSING 15P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32

INDUCTOR, MICRO

Part No.	SP	Description		
1-408-876-00	s	INDUCTOR, MICRO	0.18	5%
1-408-877-00	s	INDUCTOR, MICRO	0.22	5%
1-408-878-00	s	INDUCTOR, MICRO	0.33	5%
1-408-879-21	s	INDUCTOR, MICRO	0.47	5%
1-408-931-00	s	INDUCTOR, MICRO	0.56	5%
1-408-880-00	s	INDUCTOR, MICRO	0.68	5%
1-408-763-00	s	INDUCTOR, MICRO	0.82	5%
1-408-397-00	s	INDUCTOR, MICRO	1.0	5%
1-408-398-00	s	INDUCTOR, MICRO	1.2	5%
1-408-399-00	s	INDUCTOR, MICRO	1.5	5%
1-408-400-00	s	INDUCTOR, MICRO	1.8	5%
1-408-401-00	s	INDUCTOR, MICRO	2.2	5%
1-408-402-00	s	INDUCTOR, MICRO	2.7	5%
1-408-403-00	s	INDUCTOR, MICRO	3.3	5%
1-408-404-00	s	INDUCTOR, MICRO	3.9	5%
1-408-405-00	s	INDUCTOR, MICRO	4.7	5%
1-408-406-00	s	INDUCTOR, MICRO	5.6	5%
1-408-407-00	s	INDUCTOR, MICRO	6.8	5%
1-408-408-00	s	INDUCTOR, MICRO	8.2	5%
1-408-409-00	s	INDUCTOR, MICRO	10	5%
1-408-410-00	s	INDUCTOR, MICRO	12	5%
1-408-411-00	s	INDUCTOR, MICRO	15	5%
1-408-412-00	s	INDUCTOR, MICRO	18	5%
1-408-413-00	s	INDUCTOR, MICRO	22	5%
1-408-414-00	s	INDUCTOR, MICRO	27	5%
1-408-415-00	s	INDUCTOR, MICRO	33	5%
1-408-416-00	s	INDUCTOR, MICRO	39	5%
1-408-417-21	s	INDUCTOR, MICRO	47	5%
1-408-418-00	s	INDUCTOR, MICRO	56	5%
1-408-419-00	s	INDUCTOR, MICRO	68	5%
1-408-420-00	s	INDUCTOR, MICRO	82	5%
1-408-421-00	s	INDUCTOR, MICRO	100	5%
1-408-422-00	s	INDUCTOR, MICRO	120	5%
1-408-423-00	s	INDUCTOR, MICRO	150	5%
1-408-424-00	s	INDUCTOR, MICRO	180	5%
1-408-425-00	s	INDUCTOR, MICRO	220	5%
1-408-426-00	s	INDUCTOR, MICRO	270	5%
1-408-427-00	s	INDUCTOR, MICRO	330	5%
1-408-428-00	s	INDUCTOR, MICRO	390	5%
1-408-429-00	s	INDUCTOR, MICRO	470	5%

AU-136 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7062-026-A	o	MOUNTED CIRCUIT BOARD, AU-136
4pcs	1-535-622-11	o	PIN, TERMINAL
C1	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C3	1-124-225-00	s	ELECT 100uF 20% 6.3V
C4	1-162-638-11	s	CERAMIC, CHIP 1uF 16V
C7	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C8	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C11	1-164-182-11	s	CERAMIC CHIP 3300PF 10% 100V
C13	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C15	1-163-077-00	s	CERAMIC, CHIP 0.1uF 25V
C16	1-163-077-00	s	CERAMIC, CHIP 0.1uF 25V
C17	1-162-638-11	s	CERAMIC, CHIP 1uF 16V
C18	1-162-638-11	s	CERAMIC, CHIP 1uF 16V
C19	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C26	1-163-011-11	s	CERAMIC 0.0015uF 10% 50V
C101	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C104	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C106	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C108	1-124-225-00	s	ELECT 100uF 20% 6.3V
C109	1-135-125-21	s	TANTALUM, CHIP 33uF 20% 10V
C110	1-124-225-00	s	ELECT 100uF 20% 6.3V
C111	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C113	1-124-225-00	s	ELECT 100uF 20% 6.3V
C115	1-135-149-21	s	TANTALUM, CHIP 2.2uF 10% 10V
C116	1-135-210-21	s	TANTALUM, CHIP 4.7uF 10% 10V
C117	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C207	1-124-225-00	s	ELECT 100uF 20% 6.3V
C208	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C209	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C210	1-162-587-11	s	CERAMIC, CHIP 0.039uF 10% 25V
C214	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C215	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C216	1-163-020-00	s	CERAMIC, CHIP 0.0082uF 10% 50V
C219	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C220	1-135-149-21	s	TANTALUM, CHIP 2.2uF 10% 10V
C221	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C223	1-124-225-00	s	ELECT 100uF 20% 6.3V
C224	1-124-225-00	s	ELECT 100uF 20% 6.3V
C225	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C226	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C228	1-162-587-11	s	CERAMIC, CHIP 0.039uF 10% 25V
C231	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C232	1-135-149-21	s	TANTALUM, CHIP 2.2uF 10% 10V
C233	1-163-020-00	s	CERAMIC, CHIP 0.0082uF 10% 50V
C234	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C236	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C238	1-163-012-00	s	CERAMIC CHIP 1800PF 10% 50V
C239	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C240	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C242	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C243	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C244	1-109-814-11	s	MICA, CHIP 220PF 5% 100V
C245	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C246	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C247	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C248	1-163-012-00	s	CERAMIC CHIP 1800PF 10% 50V
C249	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C250	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V

(AU-136 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C252	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C253	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C254	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C256	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C257	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C258	1-124-225-00	s	ELECT 100uF 20% 6.3V
C259	1-124-225-00	s	ELECT 100uF 20% 6.3V
C260	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C304	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C305	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C306	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C309	1-135-145-11	s	TANTALUM, CHIP 0.47uF 10% 35V
C310	1-135-180-21	s	TANTALUM, CHIP 3.3uF 10% 10V
C313	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C320	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C323	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C324	1-163-099-00	s	CERAMIC, CHIP 18PF 5% 50V
C327	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C328	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C330	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C331	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C338	1-124-225-00	s	ELECT 100uF 20% 6.3V
CN1	1-633-818-11	o	WIRE, FREXIBLE CARD FL-102
CN2	1-506-471-11	s	CONNECTOR, 6P, MALE
CN3	1-566-763-11	o	CONNECTOR, 8P, MALE
CN4	1-566-761-11	o	CONNECTOR, 6P, MALE
CN6	1-566-764-11	o	CONNECTOR, 9P, MALE
CN7	1-633-817-11	o	WIRE, FREXIBLE CARD FL-101
D201	8-719-104-34	s	DIODE 1S2835
D202	8-719-104-34	s	DIODE 1S2835
D203	8-719-104-34	s	DIODE 1S2835
D204	8-719-104-34	s	DIODE 1S2835
D301	8-719-400-18	s	DIODE MA152WK
D302	8-719-400-18	s	DIODE MA152WK
D303	8-719-104-34	s	DIODE 1S2835
D304	8-719-400-18	s	DIODE MA152WK
D305	8-719-104-34	s	DIODE 1S2835
FL101	1-236-145-11	s	FILTER, BANDPASS
FL201	1-235-900-11	s	FILTER, LOW-PASS
FL202	1-235-900-11	s	FILTER, LOW-PASS
IC1	8-752-035-48	s	IC CXA1204Q
IC101	8-741-150-50	s	IC SBX1505-01
IC201	8-759-603-27	s	IC M5201FP
IC202	8-759-603-27	s	IC M5201FP
IC203	8-752-009-90	s	IC CX20099
IC204	8-759-981-92	s	IC RC4558M
IC205	8-759-981-92	s	IC RC4558M
IC206	8-752-322-57	s	IC CXD1077M
IC207	8-759-981-92	s	IC RC4558M
IC208	8-759-929-26	s	IC TL431CPS
IC301	8-759-972-13	s	IC CF77309FR
IC302	8-752-324-45	s	IC CXD1066Q-Z
IC303	8-752-010-30	s	IC CX20103
IC304	8-752-331-00	s	IC CXK5864BM-12L
IC305	8-759-948-61	s	IC CX23011-Z
IC306	8-759-911-19	s	IC CX23012
IC307	8-752-010-20	s	IC CX20102

NOTE: Please see pages 14-11 through 14-14 for parts that are not listed in the parts list.

(AU-136 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC308	8-759-149-77	s	IC UPD75106GF-734-3BE
IC309	8-759-009-07	s	IC MC14053BF
L1	1-408-777-00	s	INDUCTOR, CHIP 10uH
L2	1-408-795-21	s	INDUCTOR, CHIP 330uH
L3	1-408-777-00	s	INDUCTOR, CHIP 10uH
L101	1-408-785-21	s	INDUCTOR, CHIP 47uH
L201	1-408-793-21	s	INDUCTOR, CHIP 220uH
L301	1-408-789-21	s	INDUCTOR, CHIP 100uH
L302	1-408-789-21	s	INDUCTOR, CHIP 100uH
L303	1-408-789-21	s	INDUCTOR, CHIP 100uH
L304	1-408-789-21	s	INDUCTOR, CHIP 100uH
L305	1-408-789-21	s	INDUCTOR, CHIP 100uH
L306	1-408-789-21	s	INDUCTOR, CHIP 100uH
L307	1-408-793-21	s	INDUCTOR, CHIP 220uH
L309	1-408-789-21	s	INDUCTOR, CHIP 100uH
L310	1-408-789-21	s	INDUCTOR, CHIP 100uH
L311	1-408-777-00	s	INDUCTOR, CHIP 10uH
Q1	8-729-216-22	s	TRANSISTOR 2SA1162
Q2	8-729-100-66	s	TRANSISTOR 2SC1623
Q3	8-729-216-22	s	TRANSISTOR 2SA1162
Q4	8-729-100-66	s	TRANSISTOR 2SC1623
Q5	8-729-100-66	s	TRANSISTOR 2SC1623
Q101	8-729-901-06	s	TRANSISTOR DTA144EK
Q102	8-729-901-01	s	TRANSISTOR DTC144EK
Q103	8-729-100-66	s	TRANSISTOR 2SC1623
Q104	8-729-100-66	s	TRANSISTOR 2SC1623
Q106	8-729-100-66	s	TRANSISTOR 2SC1623
Q201	8-729-202-38	s	TRANSISTOR 2SC3326N
Q202	8-729-202-38	s	TRANSISTOR 2SC3326N
Q203	8-729-202-38	s	TRANSISTOR 2SC3326N
Q204	8-729-202-38	s	TRANSISTOR 2SC3326N
Q205	8-729-901-06	s	TRANSISTOR DTA144EK
Q206	8-729-901-06	s	TRANSISTOR DTA144EK
Q207	8-729-901-06	s	TRANSISTOR DTA144EK
Q208	8-729-216-22	s	TRANSISTOR 2SA1162
Q209	8-729-216-22	s	TRANSISTOR 2SA1162
Q210	8-729-202-38	s	TRANSISTOR 2SC3326N
Q211	8-729-202-38	s	TRANSISTOR 2SC3326N
Q301	8-729-102-07	s	TRANSISTOR 2SC2223-F13
Q302	8-729-122-63	s	TRANSISTOR 2SA1226
Q303	8-729-102-07	s	TRANSISTOR 2SC2223-F13
Q305	8-729-901-06	s	TRANSISTOR DTA144EK
Q306	8-729-901-01	s	TRANSISTOR DTC144EK
Q307	8-729-901-06	s	TRANSISTOR DTA144EK
Q308	8-729-102-07	s	TRANSISTOR 2SC2223-F13
R5	1-216-748-11	s	METAL, CHIP 39K 1% 1/10W
R223	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R235	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R241	1-216-680-11	s	METAL, CHIP 16K 0.5% 1/10W
R243	1-216-674-11	s	METAL, CHIP 9.1K 0.5% 1/10W
R244	1-216-662-11	s	METAL, CHIP 3K 0.5% 1/10W
R245	1-216-660-11	s	METAL, CHIP 2.4K 0.5% 1/10W
R246	1-216-662-11	s	METAL, CHIP 3K 0.5% 1/10W
R247	1-216-660-11	s	METAL, CHIP 2.4K 0.5% 1/10W
R248	1-216-674-11	s	METAL, CHIP 9.1K 0.5% 1/10W
R250	1-216-680-11	s	METAL, CHIP 16K 0.5% 1/10W
R252	1-216-748-11	s	METAL, CHIP 39K 1% 1/10W
R260	1-215-485-00	s	METAL 470K 1% 1/6W

NOTE: Please see pages 14-11 through 14-14 for parts that are not listed in the parts list.

(AU-136 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R262	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R263	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R267	1-216-748-11	s	METAL, CHIP 39K 1% 1/10W
R274	1-216-684-11	s	METAL, CHIP 24K 0.5% 1/10W
R276	1-216-680-11	s	METAL, CHIP 16K 0.5% 1/10W
R277	1-216-680-11	s	METAL, CHIP 16K 0.5% 1/10W
R278	1-216-685-11	s	METAL, CHIP 27K 0.5% 1/10W
R279	1-216-684-11	s	METAL, CHIP 24K 0.5% 1/10W
R282	1-216-022-00	s	METAL, CHIP 75 5% 1/10W
R283	1-216-685-11	s	METAL, CHIP 27K 0.5% 1/10W
R321	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R323	1-216-676-11	s	METAL, CHIP 11K 0.5% 1/10W
R365	1-249-433-11	s	CARBON, 22K, 5% 1/4W
RV1	1-230-870-11	s	RES, ADJ, METAL 10K
RV101	1-230-870-11	s	RES, ADJ, METAL 10K
RV102	1-230-870-11	s	RES, ADJ, METAL 10K
RV201	1-230-870-11	s	RES, ADJ, METAL 10K
RV202	1-230-870-11	s	RES, ADJ, METAL 10K
RV203	1-230-868-11	s	RES, ADJ, METAL 2.2K
RV204	1-230-871-11	s	RES, ADJ, METAL 22K
RV205	1-230-868-11	s	RES, ADJ, METAL 2.2K
RV206	1-230-876-11	s	RES, ADJ METAL 470K
RV207	1-230-871-11	s	RES, ADJ, METAL 22K
RV208	1-230-868-11	s	RES, ADJ, METAL 2.2K
RV301	1-230-869-11	s	RES, ADJ, METAL 4.7K
RV302	1-230-868-11	s	RES, ADJ, METAL 2.2K
X1	1-567-735-11	s	CRYSTAL 5.94755MHz
X301	1-567-669-91	s	RESONATOR, LITHIUM TANTALATE
X302	1-567-121-00	s	CRYSTAL 4.194304MHz

CC-43 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7062-027-A	o	MOUNTED CIRCUIT BOARD, CC-43
C1	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C2	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C3	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C4	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C5	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C12	1-126-162-11	s	ELECT 3.3uF 20% 50V
C13	1-126-162-11	s	ELECT 3.3uF 20% 50V
C31	1-135-153-21	s	TANTALUM, CHIP 2.2uF 10% 25V
C32	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C41	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C42	1-163-077-00	s	CERAMIC, CHIP 0.1uF 25V
CN1	1-566-581-11	o	CONNECTOR, DIN 50P, FEMALE
D11	8-719-800-76	s	DIODE 1SS226
D12	8-719-800-76	s	DIODE 1SS226
IC11	8-759-111-56	s	IC UPC4572G2
IC12	8-759-111-56	s	IC UPC4572G2
IC31	8-759-981-65	s	IC LM2903M
L1	1-408-785-21	s	INDUCTOR, CHIP 47uH
L2	1-408-785-21	s	INDUCTOR, CHIP 47uH
L3	1-408-785-21	s	INDUCTOR, CHIP 47uH
L11	1-408-776-00	s	INDUCTOR, CHIP 8.2uH
L12	1-408-776-00	s	INDUCTOR, CHIP 8.2uH
R11	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R12	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R13	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R14	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R15	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R16	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R17	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R18	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R19	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R20	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R22	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W

CC-44 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7062-028-A	o	MOUNTED CIRCUIT BOARD, CC-44
CN001	1-566-529-11	s	CONNECTOR, FPC 13P
CN002	1-566-527-11	s	CONNECTOR, FPC 11P
CN003	1-566-530-11	s	CONNECTOR, FPC 14P
D001	8-719-404-40	s	DIODE MA121
D002	8-719-404-40	s	DIODE MA121
D003	8-719-400-18	s	DIODE MA152WK

CP-146 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-537-142-11	s	TERMINAL
1pc	1-633-773-11	o	PRINTED CIRCUIT BOARD, CP-146

CP-147 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-633-774-11	o	PRINTED CIRCUIT BOARD, CP-147
D034	8-719-902-27	s	LED EBR3402S, RED
S034	1-570-608-11	s	SWITCH, TOGGLE

FP-89 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-628-060-12	s	FLEXIBLE BOARD, FP-89
1pc	3-728-869-02	s	HOLDER, SENSOR
	1-572-253-11	s	SWITCH, SLIDE
S901	1-571-099-11	s	SWITCH
D301	8-719-820-44	s	PHOTO COUPLER,TLP907-0 (SONY2)
Q301	8-729-906-48	s	EE-TP109

FP-90 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-628-061-12	s	FLEXIBLE BOARD, FP-90
1pc	3-728-837-01	s	HOLDER, LED
1pc	3-728-869-02	s	HOLDER, SENSOR
S302	1-572-298-11	s	SWITCH, PUSH
D302	8-719-940-81	s	DIODE, GL452S
D303	8-719-820-44	s	PHOTO COUPLER, TLP907-0 (SONY2)
Q302	8-729-906-48	s	EE-TP109

NOTE: Please see pages 14-11 through 14-14 for parts that are not listed in the parts list.

FP-37 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7062-029-A	o	MOUNTED CIRCUIT BOARD, FP-37
1pc	3-719-182-11	o	HOLDER, LCD
C1	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C2	1-135-210-21	s	TANTALUM, CHIP 4.7uF 10% 10V
C4	1-135-216-21	s	TANTALUM, CHIP 10uF 10% 10V
C5	1-135-210-21	s	TANTALUM, CHIP 4.7uF 10% 10V
C6	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C7	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C13	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C14	1-135-210-21	s	TANTALUM, CHIP 4.7uF 10% 10V
C16	1-135-216-21	s	TANTALUM, CHIP 10uF 10% 10V
C17	1-135-210-21	s	TANTALUM, CHIP 4.7uF 10% 10V
C18	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C19	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C25	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C26	1-135-210-21	s	TANTALUM, CHIP 4.7uF 10% 10V
C28	1-135-216-21	s	TANTALUM, CHIP 10uF 10% 10V
C29	1-135-210-21	s	TANTALUM, CHIP 4.7uF 10% 10V
C30	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C31	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C32	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C33	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C201	1-135-210-21	s	TANTALUM, CHIP 4.7uF 10% 10V
C202	1-135-210-21	s	TANTALUM, CHIP 4.7uF 10% 10V
C203	1-135-210-21	s	TANTALUM, CHIP 4.7uF 10% 10V
C205	1-124-234-00	s	ELECT 22uF 20% 16V
C206	1-126-157-11	s	ELECT 10uF 20% 16V
C207	1-126-154-11	s	ELECT 47uF 20% 6.3V
C208	1-126-154-11	s	ELECT 47uF 20% 6.3V
C209	1-135-149-21	s	TANTALUM, CHIP 2.2uF 10% 10V
C211	1-124-225-00	s	ELECT 100uF 20% 6.3V
C213	1-124-443-00	s	ELECT 100uF 20% 10V
C214	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C216	1-124-239-00	s	ELECT 6.8uF 20% 25V
C217	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C218	1-124-239-00	s	ELECT 6.8uF 20% 25V
C219	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C220	1-124-239-00	s	ELECT 6.8uF 20% 25V
C221	1-135-211-11	s	TANTALUM, CHIP 6.8uF 20% 6.3V
C222	1-126-154-11	s	ELECT 47uF 20% 6.3V
C223	1-126-154-11	s	ELECT 47uF 20% 6.3V
C224	1-126-157-11	s	ELECT 10uF 20% 16V
C225	1-126-153-11	s	ELECT 22uF 20% 6.3V
C226	1-126-157-11	s	ELECT 10uF 20% 16V
C503	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
CN2	1-506-471-11	s	CONNECTOR, 6P, MALE
CN5	1-566-761-11	o	CONNECTOR, 6P, MALE
CN7	1-566-514-11	s	CONNECTOR, FPC 14P
CN8	1-506-471-11	s	CONNECTOR, 6P, MALE
CN14	1-566-517-11	s	CONNECTOR, FPC 17P
D1	8-719-800-76	s	DIODE 1SS226
D6	8-719-800-76	s	DIODE 1SS226
D7	8-719-800-76	s	DIODE 1SS226
D201	8-719-400-18	s	DIODE MA152WK
D202	8-719-121-87	s	DIODE RD15ESL2
D203	8-719-800-76	s	DIODE 1SS226
D204	8-719-121-13	s	DIODE RD8.2ESL1
D206	8-719-911-19	s	DIODE 1SS119

NOTE: Please see pages 14-11 through 14-14 for parts that are not listed in the parts list.

(FP-37 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D207	8-719-911-19	s	DIODE 1SS119
D208	8-719-400-18	s	DIODE MA152WK
D501	8-719-800-56	s	LED TLUR164, RED
D502	8-719-945-13	s	DIODE SLH-34YC3F
D503	8-719-945-13	s	DIODE SLH-34YC3F
D504	8-719-945-13	s	DIODE SLH-34YC3F
D505	8-719-945-13	s	DIODE SLH-34YC3F
IC1	8-759-111-56	s	IC UPC4572G2
IC2	8-759-111-56	s	IC UPC4572G2
IC4	8-759-111-56	s	IC UPC4572G2
IC5	8-759-111-56	s	IC UPC4572G2
IC6	8-759-111-56	s	IC UPC4572G2
IC8	8-759-939-41	s	IC S-81230AG-RB
IC10	8-759-111-56	s	IC UPC4572G2
IC201	8-759-111-56	s	IC UPC4572G2
IC202	8-759-111-56	s	IC UPC4572G2
IC203	8-759-981-99	s	IC RC4560M
IC204	8-759-700-50	s	IC NJM386M
IC205	8-759-009-07	s	IC MC14053BF
IC501	8-759-972-12	s	IC CF77305FT
IC502	8-752-814-56	s	IC CXP5078H-041Q
IC503	1-808-016-11	s	ARRAY, LED
L201	1-408-798-00	s	INDUCTOR, CHIP 1mmH
L202	1-408-798-00	s	INDUCTOR, CHIP 1mmH
L203	1-408-798-00	s	INDUCTOR, CHIP 1mmH
L501	1-408-777-00	s	INDUCTOR, CHIP 10uH
L502	1-408-777-00	s	INDUCTOR, CHIP 10uH
LCD501	1-807-981-11	s	LCD
Q1	8-729-100-66	s	TRANSISTOR 2SC1623
Q2	8-729-100-66	s	TRANSISTOR 2SC1623
Q3	8-729-100-66	s	TRANSISTOR 2SC1623
Q4	8-729-100-66	s	TRANSISTOR 2SC1623
Q5	8-729-901-01	s	TRANSISTOR DTC144EK
Q6	8-729-100-66	s	TRANSISTOR 2SC1623
Q7	8-729-100-66	s	TRANSISTOR 2SC1623
Q8	8-729-100-66	s	TRANSISTOR 2SC1623
Q9	8-729-100-66	s	TRANSISTOR 2SC1623
Q10	8-729-100-66	s	TRANSISTOR 2SC1623
Q11	8-729-901-01	s	TRANSISTOR DTC144EK
Q12	8-729-100-66	s	TRANSISTOR 2SC1623
Q13	8-729-100-66	s	TRANSISTOR 2SC1623
Q14	8-729-100-66	s	TRANSISTOR 2SC1623
Q15	8-729-100-66	s	TRANSISTOR 2SC1623
Q16	8-729-100-66	s	TRANSISTOR 2SC1623
Q17	8-729-100-66	s	TRANSISTOR 2SC1623
Q201	8-729-100-66	s	TRANSISTOR 2SC1623
Q202	8-729-100-66	s	TRANSISTOR 2SC1623
Q203	8-729-100-66	s	TRANSISTOR 2SC1623
Q204	8-729-216-22	s	TRANSISTOR 2SA1162
Q205	8-729-202-38	s	TRANSISTOR 2SC3326N
Q206	8-729-216-22	s	TRANSISTOR 2SA1162
Q501	8-729-901-01	s	TRANSISTOR DTC144EK
Q502	8-729-901-01	s	TRANSISTOR DTC144EK
Q503	8-729-900-52	s	TRANSISTOR DTC114YK
R2	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W
R3	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R7	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W

(FP-37 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R8	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R9	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R10	1-216-678-11	s	METAL, CHIP 13K 0.5% 1/10W
R12	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R13	1-216-682-11	s	METAL, CHIP 20K 0.5% 1/10W
R15	1-216-682-11	s	METAL, CHIP 20K 0.5% 1/10W
R16	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R17	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R35	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W
R36	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R39	1-216-678-11	s	METAL, CHIP 13K 0.5% 1/10W
R40	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R42	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R43	1-216-682-11	s	METAL, CHIP 20K 0.5% 1/10W
R45	1-216-682-11	s	METAL, CHIP 20K 0.5% 1/10W
R46	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R47	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R72	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W
R73	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R77	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R78	1-216-678-11	s	METAL, CHIP 13K 0.5% 1/10W
R80	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R81	1-216-682-11	s	METAL, CHIP 20K 0.5% 1/10W
R83	1-216-682-11	s	METAL, CHIP 20K 0.5% 1/10W
R84	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R85	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R211	1-216-748-11	s	METAL, CHIP 39K 1% 1/10W
R224	1-216-748-11	s	METAL, CHIP 39K 1% 1/10W
R225	1-216-748-11	s	METAL, CHIP 39K 1% 1/10W
R257	1-216-676-11	s	METAL, CHIP 11K 0.5% 1/10W
R512	1-249-411-11	s	CARBON 330 5% 1/4W
R513	1-249-412-11	s	CARBON 390 5% 1/4W
R514	1-249-409-11	s	CARBON 220 5% 1/4W
R515	1-249-409-11	s	CARBON 220 5% 1/4W
RV1	1-230-337-11	s	RES, VAR, CARBON 10K
RV2	1-230-337-11	s	RES, VAR, CARBON 10K
RV3	1-230-337-11	s	RES, VAR, CARBON 10K
RV4	1-238-007-21	s	RES, ADJ METAL 100K
RV201	1-238-005-21	s	RES, ADJ METAL 10K
RV202	1-230-337-11	s	RES, VAR, CARBON 10K
RV203	1-230-337-11	s	RES, VAR, CARBON 10K
RV204	1-238-004-21	s	RES, ADJ METAL 4.7K
RV205	1-238-004-21	s	RES, ADJ METAL 4.7K
RV206	1-238-004-21	s	RES, ADJ METAL 4.7K
RV207	1-238-006-21	s	RES, ADJ METAL 22K
S1	1-570-839-11	s	SWITCH, SLIDE
S2	1-570-862-11	s	SWITCH, SLIDE
S3	1-570-844-11	s	SWITCH, SLIDE
S4	1-570-844-11	s	SWITCH, SLIDE
S5	1-571-275-11	s	SWITCH, SLIDE
S6	1-571-275-11	s	SWITCH, SLIDE
S7	1-571-275-11	s	SWITCH, SLIDE
S201	1-570-850-21	s	SWITCH, SLIDE
S202	1-570-856-11	s	SWITCH, SLIDE
S203	1-570-853-11	s	SWITCH, SLIDE
S501	1-570-373-12	s	SWITCH, SLIDE
S502	1-570-856-11	s	SWITCH, SLIDE
S503	1-570-845-11	s	SWITCH, SLIDE

NOTE: Please see pages 14-11 through 14-14 for parts that are not listed in the parts list.

(FP-37 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
S504	1-554-371-51	s	SWITCH, TACTILE
S505	1-570-845-11	s	SWITCH, SLIDE
TM501	1-548-119-21	s	HOURS METER
X501	1-567-346-11	s	RESONATOR, CERAMIC 0.5MHz

HP-49 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-633-776-11	o	PRINTED CIRCUIT BOARD, HP-49
C1	1-161-377-00	s	CERAMIC 0.0047uF 20% 50V
C2	1-161-377-00	s	CERAMIC 0.0047uF 20% 50V
CN034	1-507-980-11	s	JACK, PHONE
R1	1-249-395-11	s	CARBON 15 5% 1/4W
R2	1-249-395-11	s	CARBON 15 5% 1/4W

KY-191 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
D1	8-719-920-65	s	LED GL-1HD1, RED
D2	8-719-920-65	s	LED GL-1HD1, RED
D3	8-719-920-65	s	LED GL-1HD1, RED
D4	8-719-400-18	s	DIODE MA152WK
D5	8-719-400-18	s	DIODE MA152WK
D6	8-719-400-18	s	DIODE MA152WK
S1	1-554-371-51	s	SWITCH, TACTILE
S2	1-554-371-51	s	SWITCH, TACTILE
S3	1-554-371-51	s	SWITCH, TACTILE
S4	1-554-371-51	s	SWITCH, TACTILE
S5	1-554-371-51	s	SWITCH, TACTILE

PS-209 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7062-032-A	o	MOUNTED CIRCUIT BOARD, PS-209
C1	1-131-374-00	s	TANTALUM 33uF 10% 16V
C2	1-131-374-00	s	TANTALUM 33uF 10% 16V
C3	1-131-374-00	s	TANTALUM 33uF 10% 16V
C4	1-131-374-00	s	TANTALUM 33uF 10% 16V
C5	1-131-374-00	s	TANTALUM 33uF 10% 16V
C6	1-131-374-00	s	TANTALUM 33uF 10% 16V
C7	1-131-374-00	s	TANTALUM 33uF 10% 16V
C8	1-131-374-00	s	TANTALUM 33uF 10% 16V
C9	1-131-374-00	s	TANTALUM 33uF 10% 16V
C10	1-131-374-00	s	TANTALUM 33uF 10% 16V
C11	1-131-374-00	s	TANTALUM 33uF 10% 16V
C101	1-126-094-11	s	ELECT 4.7uF 20% 35V
C102	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C104	1-126-160-11	s	ELECT 1uF 20% 50V
C105	1-164-161-11	s	CERAMIC, CHIP 0.0022uF 10% 100V
C106	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C111	1-124-943-11	s	ELECT 39 20% 25V
C113	1-124-943-11	s	ELECT 39 20% 25V
C114	1-124-584-00	s	ELECT 100uF 20% 10V
C115	1-124-225-00	s	ELECT 100uF 20% 6.3V
C116	1-124-225-00	s	ELECT 100uF 20% 6.3V
C117	1-124-225-00	s	ELECT 100uF 20% 6.3V
C152	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C153	1-126-160-11	s	ELECT 1uF 20% 50V
C154	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C155	1-164-161-11	s	CERAMIC, CHIP 0.0022uF 10% 100V
C156	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C157	1-126-160-11	s	ELECT 1uF 20% 50V
C172	1-126-094-11	s	ELECT 4.7uF 20% 35V
C174	1-126-154-11	s	ELECT 47uF 20% 6.3V
C175	1-124-225-00	s	ELECT 100uF 20% 6.3V
C181	1-124-943-11	s	ELECT 39 20% 25V
C183	1-124-943-11	s	ELECT 39 20% 25V
C184	1-124-569-11	s	ELECT 56uF 20% 16V
C185	1-124-589-11	s	ELECT 47uF 20% 16V
CN1	1-508-950-00	s	CONNECTOR, IL 4P, MALE
CN2	1-508-934-00	o	CONNECTOR, IL 3P, MALE
CN3	1-508-933-00	o	CONNECTOR, IL 2P, MALE
CN8	1-506-471-11	s	CONNECTOR, 6P, MALE
D101	8-719-800-76	s	DIODE 1SS226
D111	8-719-981-00	s	DIODE ERC81-004
D151	8-719-400-18	s	DIODE MA152WK
D152	8-719-104-34	s	DIODE 1S2835
D171	8-719-981-01	s	DIODE ERA81-004
D181	8-719-981-01	s	DIODE ERA81-004
IC101	8-759-937-36	s	IC TL1451ACNS
IC151	8-759-937-36	s	IC TL1451ACNS
L111	1-424-105-11	s	COIL, CHOKE 22UH
L112	1-412-218-11	s	COIL, CHOKE 47uH
L171	1-424-359-11	s	COIL, CHOKE 22UH
L172	1-412-218-11	s	COIL, CHOKE 47uH
L181	1-424-105-11	s	COIL, CHOKE 22UH
L182	1-412-218-11	s	COIL, CHOKE 47uH
⚠PS1	1-532-846-21	s	LINK, IC 5.0A

(PS-209 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q1	8-729-208-96	s	TRANSISTOR 2SA1242-Y
Q2	8-729-901-01	s	TRANSISTOR DTC144EK
Q102	8-729-901-01	s	TRANSISTOR DTC144EK
Q111	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q113	8-729-208-96	s	TRANSISTOR 2SA1242-Y
Q151	8-729-901-01	s	TRANSISTOR DTC144EK
Q152	8-729-901-06	s	TRANSISTOR DTA144EK
Q171	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q172	8-729-807-42	s	TRANSISTOR 2SB1123-T-TC
Q181	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q183	8-729-208-96	s	TRANSISTOR 2SA1242-Y
R4	1-249-409-11	s	CARBON 220 5% 1/4W
R102	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R115	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R116	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R159	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R173	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R185	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R186	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
RV101	1-230-869-11	s	RES, ADJ, METAL 4.7K
RV111	1-230-867-11	s	RES, ADJ, METAL 1K
RV221	1-230-870-11	s	RES, ADJ, METAL 10K
RV241	1-230-867-11	s	RES, ADJ, METAL 1K

NOTE: Please see pages 14-11 through 14-14 for parts that are not listed in the parts list.

RP-54 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
This board includes HR-3 Board.			
1pc	A-7062-024-A	o	MOUNTED CIRCUIT BOARD, RP-54
1pc	A-7068-142-A	s	MOUNTED CITCUIT BOARD, HR-3
1pc	3-744-353-01	o	PLATE, SHIELD, D.F
C800	1-131-381-00	s	TANTALUM 47uF 10% 10V
C803	1-124-778-00	s	ELECT 22uF 20% 6.3V
C807	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C808	1-162-917-11	s	CERAMIC, CHIP 15PF 5% 50V
C809	1-135-201-11	s	TANTALUM, CHIP 10uF 20% 6.3V
C810	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C811	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C813	1-162-940-11	s	CERAMIC, CHIP 9PF 50V
C814	1-162-940-11	s	CERAMIC, CHIP 9PF 50V
C816	1-162-953-11	s	CERAMIC, CHIP 100PF 5% 50V
C817	1-162-952-11	s	CERAMIC, CHIP 82PF 5% 50V
C819	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C820	1-162-953-11	s	CERAMIC, CHIP 100PF 5% 50V
C821	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C824	1-162-947-11	s	CERAMIC, CHIP 33PF 5% 50V
C825	1-162-965-11	s	CERAMIC, CHIP 0.0015uF 10% 50V
C827	1-162-958-11	s	CERAMIC, CHIP 270PF 5% 50V
C829	1-162-949-11	s	CERAMIC, CHIP 47PF 5% 50V
C830	1-162-948-11	s	CERAMIC, CHIP 39PF 5% 50V
C831	1-162-952-11	s	CERAMIC, CHIP 82PF 5% 50V
C833	1-126-601-11	s	ELECT 2.2uF 20% 50V
C834	1-162-949-11	s	CERAMIC, CHIP 47PF 5% 50V
C835	1-162-948-11	s	CERAMIC, CHIP 39PF 5% 50V
C837	1-124-778-00	s	ELECT 22uF 20% 6.3V
C839	1-162-938-11	s	CERAMIC, CHIP 7PF 50V
C840	1-162-941-11	s	CERAMIC, CHIP 10PF 50V
C845	1-162-946-11	s	CERAMIC, CHIP 27PF 5% 50V
C850	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C851	1-162-942-11	s	CERAMIC, CHIP 12PF 5% 50V
C853	1-162-938-11	s	CERAMIC, CHIP 7PF 50V
C854	1-162-944-11	s	CERAMIC, CHIP 18PF 5% 50V
C859	1-162-949-11	s	CERAMIC, CHIP 47PF 5% 50V
C861	1-162-937-11	s	CERAMIC, CHIP 6PF 50V
C862	1-162-945-11	s	CERAMIC, CHIP 22PF 5% 50V
C863	1-126-603-11	s	ELECT 4.7uF 20% 35V
C865	1-126-603-11	s	ELECT 4.7uF 20% 35V
C870	1-162-955-11	s	CERAMIC, CHIP 150PF 5% 50V
C871	1-162-968-11	s	CERAMIC, CHIP 0.0047uF 10% 50V
C872	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C873	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C876	1-162-945-11	s	CERAMIC, CHIP 22PF 5% 50V
C880	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C882	1-124-778-00	s	ELECT 22uF 20% 6.3V
C883	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C885	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C886	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C890	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C891	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C893	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C894	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C904	1-162-930-11	s	CERAMIC, CHIP 1PF 50V
C951	1-124-778-00	s	ELECT 22uF 20% 6.3V
C953	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C954	1-162-957-11	s	CERAMIC, CHIP 220PF 5% 50V
C955	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V

NOTE: Please see pages 14-11 through 14-14 for parts that are not listed in the parts list.

(RP-54 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C957	1-162-945-11	s	CERAMIC, CHIP 22PF 5% 50V
C958	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C959	1-135-180-21	s	TANTALUM, CHIP 3.3uF 10% 10V
C960	1-162-946-11	s	CERAMIC, CHIP 27PF 5% 50V
C961	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C962	1-135-180-21	s	TANTALUM, CHIP 3.3uF 10% 10V
CN801	1-566-516-11	s	CONNECTOR, FPC 16P
CN803	1-566-765-11	o	CONNECTOR, 10P, MALE
CN804	1-566-766-11	o	CONNECTOR, 11P, MALE
CN805	1-566-761-11	o	CONNECTOR, 6P, MALE
D801	8-719-123-85	s	DIODE 1SS304
D802	8-719-123-85	s	DIODE 1SS304
D804	8-719-800-76	s	DIODE 1SS226
D805	8-719-123-85	s	DIODE 1SS304
D806	8-719-123-85	s	DIODE 1SS304
D807	8-719-400-18	s	DIODE MA152WK
D808	8-719-123-85	s	DIODE 1SS304
D809	8-719-123-85	s	DIODE 1SS304
D810	8-719-123-85	s	DIODE 1SS304
D951	8-719-800-76	s	DIODE 1SS226
IC801	8-759-233-94	s	IC TA8607F
IC802	8-759-925-60	s	IC BA401
L800	1-408-978-21	s	INDUCTOR 47uH
L801	1-410-732-21	s	INDUCTOR, CHIP 0.18uH
L802	1-410-381-11	s	INDUCTOR, CHIP 10uH
L803	1-410-382-31	s	INDUCTOR, CHIP 12uH
L804	1-410-384-31	s	INDUCTOR, CHIP 18uH
L805	1-410-384-31	s	INDUCTOR, CHIP 18uH
L806	1-410-381-11	s	INDUCTOR, CHIP 10uH
L807	1-410-381-11	s	INDUCTOR, CHIP 10uH
L808	1-408-795-21	s	INDUCTOR, CHIP 330uH
L809	1-410-167-41	s	INDUCTOR, CHIP 820uH
L810	1-410-657-21	s	INDUCTOR, CHIP 180uH
L811	1-410-379-21	s	INDUCTOR, CHIP 6.8uH
L812	1-410-374-11	s	INDUCTOR, CHIP 2.7uH
L813	1-410-379-21	s	INDUCTOR, CHIP 6.8uH
L814	1-410-379-21	s	INDUCTOR, CHIP 6.8uH
L815	1-410-384-31	s	INDUCTOR, CHIP 18uH
L816	1-408-797-11	s	INDUCTOR, CHIP 470uH
L817	1-408-797-11	s	INDUCTOR, CHIP 470uH
L818	1-410-384-31	s	INDUCTOR, CHIP 18uH
L819	1-408-793-21	s	INDUCTOR, CHIP 220uH
L820	1-410-381-11	s	INDUCTOR, CHIP 10uH
L821	1-410-381-11	s	INDUCTOR, CHIP 10uH
L822	1-410-383-31	s	INDUCTOR, CHIP 15uH
L951	1-410-381-11	s	INDUCTOR, CHIP 10uH
L952	1-410-387-11	s	INDUCTOR, CHIP 33uH
L953	1-410-381-11	s	INDUCTOR, CHIP 10uH
L954	1-410-381-11	s	INDUCTOR, CHIP 10uH
Q801	8-729-901-02	s	TRANSISTOR DTC124XK
Q802	8-729-105-68	s	TRANSISTOR 2SC3356-K
Q803	8-729-102-07	s	TRANSISTOR 2SC2223-F13
Q804	8-729-117-32	s	TRANSISTOR 2SC4177
Q805	8-729-102-07	s	TRANSISTOR 2SC2223-F13
Q806	8-729-102-07	s	TRANSISTOR 2SC2223-F13
Q807	8-729-905-12	s	TRANSISTOR DTA144EU
Q808	8-729-216-22	s	TRANSISTOR 2SA1162

(RP-54 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q809	8-729-119-76	s	TRANSISTOR 2SA1115P
Q810	8-729-216-22	s	TRANSISTOR 2SA1162
Q811	8-729-117-32	s	TRANSISTOR 2SC4177
Q812	8-729-117-32	s	TRANSISTOR 2SC4177
Q813	8-729-904-07	s	TRANSISTOR FMG2
Q814	8-729-905-45	s	TRANSISTOR DTA143EU
Q815	8-729-905-12	s	TRANSISTOR DTA144EU
Q816	8-729-905-18	s	TRANSISTOR DTC144EU
Q817	8-729-117-32	s	TRANSISTOR 2SC4177
Q819	8-729-117-32	s	TRANSISTOR 2SC4177
Q820	8-729-903-10	s	TRANSISTOR FMW1
Q821	8-729-117-32	s	TRANSISTOR 2SC4177
Q822	8-729-117-32	s	TRANSISTOR 2SC4177
Q823	8-729-162-44	s	TRANSISTOR 2SB624-BV4
Q824	8-729-905-18	s	TRANSISTOR DTC144EU
Q825	8-729-904-07	s	TRANSISTOR FMG2
Q826	8-729-905-12	s	TRANSISTOR DTA144EU
Q827	8-729-905-18	s	TRANSISTOR DTC144EU
Q828	8-729-905-18	s	TRANSISTOR DTC144EU
Q829	8-729-905-18	s	TRANSISTOR DTC144EU
Q830	8-729-216-22	s	TRANSISTOR 2SA1162
Q831	8-729-102-07	s	TRANSISTOR 2SC2223-F13
Q832	8-729-102-07	s	TRANSISTOR 2SC2223-F13
Q833	8-729-202-38	s	TRANSISTOR 2SC3326N
Q834	8-729-117-32	s	TRANSISTOR 2SC4177
Q835	8-729-216-22	s	TRANSISTOR 2SA1162
Q836	8-729-100-66	s	TRANSISTOR 2SC1623
Q837	8-729-117-32	s	TRANSISTOR 2SC4177
Q838	8-729-117-32	s	TRANSISTOR 2SC4177
Q951	8-729-907-26	s	TRANSISTOR IMX1
Q952	8-729-117-32	s	TRANSISTOR 2SC4177
Q953	8-729-140-63	s	TRANSISTOR 2SA1611-M5M6
Q954	8-729-117-32	s	TRANSISTOR 2SC4177
Q955	8-729-903-97	s	TRANSISTOR FMS1FE
Q956	8-729-117-32	s	TRANSISTOR 2SC4177
Q957	8-729-140-63	s	TRANSISTOR 2SA1611-M5M6
Q958	8-729-117-32	s	TRANSISTOR 2SC4177
Q959	8-729-905-18	s	TRANSISTOR DTC144EU
R801	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R802	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R803	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R804	1-216-811-11	s	METAL, CHIP 150 5% 1/16W
R805	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R806	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R807	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R808	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R809	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R810	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R811	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R812	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R813	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R814	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R817	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R818	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R819	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R820	1-216-805-11	s	METAL, CHIP 47 5% 1/16W
R821	1-216-818-11	s	METAL, CHIP 560 5% 1/16W
R822	1-216-814-11	s	METAL, CHIP 270 5% 1/16W

(RP-54 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R823	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R824	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R825	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R826	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R827	1-216-811-11	s	METAL, CHIP 150 5% 1/16W
R828	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R829	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R830	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R831	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R832	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R834	1-216-818-11	s	METAL, CHIP 560 5% 1/16W
R835	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R836	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R837	1-216-815-11	s	METAL, CHIP 330 5% 1/16W
R838	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R839	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R840	1-216-816-11	s	METAL, CHIP 390 5% 1/16W
R841	1-216-818-11	s	METAL, CHIP 560 5% 1/16W
R842	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R843	1-216-840-11	s	METAL, CHIP 39K 5% 1/16W
R844	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R845	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R846	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R847	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R848	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R849	1-216-818-11	s	METAL, CHIP 560 5% 1/16W
R850	1-216-811-11	s	METAL, CHIP 150 5% 1/16W
R852	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R853	1-216-840-11	s	METAL, CHIP 39K 5% 1/16W
R854	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R855	1-216-815-11	s	METAL, CHIP 330 5% 1/16W
R856	1-216-820-11	s	METAL, CHIP 820 5% 1/16W
R857	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R858	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R859	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R861	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R862	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R865	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R866	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R867	1-216-814-11	s	METAL, CHIP 270 5% 1/16W
R868	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R869	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R870	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R872	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R873	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R874	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R875	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R876	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R877	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R878	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R882	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R883	1-216-844-11	s	METAL, CHIP 82K 5% 1/16W
R884	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R885	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R886	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R887	1-216-818-11	s	METAL, CHIP 560 5% 1/16W
R888	1-216-816-11	s	METAL, CHIP 390 5% 1/16W
R889	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R890	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W

NOTE: Please see pages 14-11 through 14-14 for parts that are not listed in the parts list.

(RP-54 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R891	1-216-818-11	s	METAL, CHIP 560 5% 1/16W
R894	1-216-812-11	s	METAL, CHIP 180 5% 1/16W
R895	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R896	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R899	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R901	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R902	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R903	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R904	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R905	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R906	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R907	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R908	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R909	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R910	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R911	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R912	1-216-296-00	s	METAL, CHIP 0 5% 1/8W
R913	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R914	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R915	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R916	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R917	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R951	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R952	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R953	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R954	1-216-811-11	s	METAL, CHIP 150 5% 1/16W
R955	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R956	1-216-820-11	s	METAL, CHIP 820 5% 1/16W
R957	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R958	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R959	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R960	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R961	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R962	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R963	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R964	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R965	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R966	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R967	1-216-818-11	s	METAL, CHIP 560 5% 1/16W
R968	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R969	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R970	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R971	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
RV801	1-230-868-11	s	RES, ADJ, METAL 2.2K
RV802	1-230-869-11	s	RES, ADJ, METAL 4.7K
RV803	1-230-869-11	s	RES, ADJ, METAL 4.7K
RV805	1-230-868-11	s	RES, ADJ, METAL 2.2K
RV806	1-230-867-11	s	RES, ADJ, METAL 1K

NOTE: Please see pages 14-11 through 14-14 for parts that are not listed in the parts list.

SS-43 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7062-025-A	o	MOUNTED CIRCUIT BOARD, SS-43
C001	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C002	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C003	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C004	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C006	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C007	1-163-095-00	s	CERAMIC, CHIP 12PF 5% 50V
C008	1-163-095-00	s	CERAMIC, CHIP 12PF 5% 50V
C010	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C011	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C014	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C015	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C016	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C019	1-163-009-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C200	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C201	1-135-180-21	s	TANTALUM, CHIP 3.3uF 10% 10V
C202	1-135-149-21	s	TANTALUM, CHIP 2.2uF 10% 10V
C203	1-135-157-21	s	TANTALUM, CHIP 10uF 10% 6.3V
C204	1-124-779-00	s	ELECT 10uF 20% 16V
C205	1-124-779-00	s	ELECT 10uF 20% 16V
C206	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C207	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C208	1-124-779-00	s	ELECT 10uF 20% 16V
C209	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C211	1-127-539-11	s	ALUMN SOLID 1uF 20% 25V
C212	1-135-177-21	s	TANTALUM, CHIP 1uF 10% 25V
C213	1-135-154-21	s	TANTALUM, CHIP 3.3uF 10% 20V
C214	1-162-638-11	s	CERAMIC, CHIP 1uF 16V
C215	1-124-779-00	s	ELECT 10uF 20% 16V
C217	1-164-330-21	s	CERAMIC, CHIP 0.22uF 5% 16V
C218	1-164-330-21	s	CERAMIC, CHIP 0.22uF 5% 16V
C219	1-164-330-21	s	CERAMIC, CHIP 0.22uF 5% 16V
C222	1-163-077-00	s	CERAMIC, CHIP 0.1uF 25V
C223	1-136-718-11	s	FILM 0.1MF 5% 25V
C224	1-126-437-11	s	ELECT 47uF 20% 16V
C225	1-127-558-11	s	ALUMN SOLID 10uF 20% 10V
C229	1-163-123-00	s	CERAMIC, CHIP 180PF 5% 50V
C231	1-163-095-00	s	CERAMIC, CHIP 12PF 5% 50V
C233	1-127-558-11	s	ALUMN SOLID 10uF 20% 10V
C236	1-127-558-11	s	ALUMN SOLID 10uF 20% 10V
C237	1-163-009-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C239	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C244	1-135-154-21	s	TANTALUM, CHIP 3.3uF 10% 20V
C245	1-163-077-00	s	CERAMIC, CHIP 0.1uF 25V
CN001	1-566-530-11	s	CONNECTOR, FPC 14P
CN002	1-565-527-11	s	CONNECTOR, 2P, MALE
CN003	1-565-527-11	s	CONNECTOR, 2P, MALE
CN006	1-565-878-11	s	CONNECTOR, 6P, MALE
CN007	1-566-764-11	o	CONNECTOR, 9P, MALE
CN008	1-566-762-11	o	CONNECTOR, 7P, MALE
CN009	1-569-035-11	s	CONNECTOR, FPC 30P
CN010	1-629-194-11	s	PRINTED CIRCUIT BOARD, FP-161
CN011	1-565-529-21	s	CONNECTOR, 4P, MALE
CN012	1-565-529-21	s	CONNECTOR, 4P, MALE
CN013	1-562-880-11	s	CONNECTOR, 15P, FEMALE
D005	8-719-404-35	s	DIODE MA141WK
D010	8-719-105-28	s	DIODE RD2.4M-B

(SS-43 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D200	8-719-938-75	s	DIODE SB05-05CP
D201	8-719-938-75	s	DIODE SB05-05CP
D202	8-719-404-32	s	DIODE MA141WA
D300	8-719-400-18	s	DIODE MA152WK
IC001	8-752-814-55	s	IC CXP80116-657Q
IC002	8-759-804-72	s	IC LB1631M
IC003	8-759-013-22	s	IC LM358M
IC200	8-759-107-68	s	IC CX20115A
IC201	8-759-202-45	s	IC CX20114
IC202	8-759-805-06	s	IC CXA1127M
IC203	8-759-100-94	s	IC UPC358G2
IC204	8-759-945-17	s	IC MB3775PF
L001	1-410-381-11	s	INDUCTOR, CHIP 10uH
L200	1-410-381-11	s	INDUCTOR, CHIP 10uH
L201	1-424-104-11	s	COIL, CHOKE 10UH
L202	1-424-106-11	s	COIL, CHOKE 47UH
L203	1-424-105-11	s	COIL, CHOKE 22UH
Q001	8-729-100-66	s	TRANSISTOR 2SC1623
Q003	8-729-100-66	s	TRANSISTOR 2SC1623
Q005	8-729-907-00	s	TRANSISTOR DTC114EU
Q006	8-729-104-93	s	TRANSISTOR 2SB1040A-3
Q007	8-729-905-35	s	TRANSISTOR 2SC4081-R
Q008	8-729-905-35	s	TRANSISTOR 2SC4081-R
Q011	8-729-907-05	s	TRANSISTOR FMG5
Q012	8-729-905-18	s	TRANSISTOR DTC144EU
Q013	8-729-907-26	s	TRANSISTOR IMX1
Q014	8-729-905-35	s	TRANSISTOR 2SC4081-R
Q200	8-729-905-12	s	TRANSISTOR DTA144EU
Q201	8-729-905-23	s	TRANSISTOR 2SA1576-R
Q202	8-729-905-35	s	TRANSISTOR 2SC4081-R
Q203	8-729-905-12	s	TRANSISTOR DTA144EU
Q204	8-729-905-61	s	TRANSISTOR DTC124EU
Q205	8-729-905-18	s	TRANSISTOR DTC144EU
Q206	8-729-905-35	s	TRANSISTOR 2SC4081-R
Q207	8-729-805-25	s	TRANSISTOR 2SB1121-S
Q208	8-729-119-83	s	TRANSISTOR 2SC4175-B3
Q209	8-729-805-25	s	TRANSISTOR 2SB1121-S
Q210	8-729-119-83	s	TRANSISTOR 2SC4175-B3
Q211	8-729-905-18	s	TRANSISTOR DTC144EU
Q212	8-729-920-39	s	TRANSISTOR IMT1US
Q213	8-729-905-18	s	TRANSISTOR DTC144EU
Q214	8-729-901-04	s	TRANSISTOR DTA114EK
R038	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R039	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R222	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R223	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
RV002	1-230-874-11	s	RES, ADJ, METAL 100K
RV200	1-230-876-11	s	RES, ADJ METAL 470K
RV201	1-230-869-11	s	RES, ADJ, METAL 4.7K
TH001	1-800-200-00	s	THERMISTOR S-3K
TP001	1-535-622-11	o	PIN, TERMINAL
TP002	1-535-622-11	o	PIN, TERMINAL
X001	1-577-116-21	s	CRYSTAL 16MHz

NOTE: Please see pages 14-11 through 14-14 for parts that are not listed in the parts list.

SY-153 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7062-030-A	o	MOUNTED CIRCUIT BOARD, SY-153
1pc	7-621-759-35	s	+PSW, 2.6X5
C1	1-126-154-11	s	ELECT 47uF 20% 6.3V
C2	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C4	1-126-157-11	s	ELECT 10uF 20% 16V
C5	1-125-513-11	s	DOUBLE LAYERS 0.047FARAD 5.5V
C6	1-162-638-11	s	CERAMIC, CHIP 1uF 16V
C8	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C10	1-126-153-11	s	ELECT 22uF 20% 6.3V
C12	1-163-009-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C13	1-124-248-00	s	ELECT 22uF 20% 35V
C23	1-125-579-11	s	DOUBLE LAYERS 0.1FARAD 5.5V
C24	1-126-094-11	s	ELECT 4.7uF 20% 35V
C25	1-131-353-00	s	TANTALUM 10uF 10% 35V
C26	1-124-242-00	s	ELECT 33uF 20% 25V
C28	1-124-584-00	s	ELECT 100uF 20% 10V
CN4	1-566-764-11	o	CONNECTOR, 9P, MALE
CN5	1-564-019-31	o	CONNECTOR, 9P, MALE
CN6	1-566-762-11	o	CONNECTOR, 7P, MALE
D3	8-719-400-18	s	DIODE MA152WK
D4	8-719-981-01	s	DIODE ERA81-004
D5	8-719-911-19	s	DIODE 1SS119
D6	8-719-400-18	s	DIODE MA152WK
D7	8-719-400-18	s	DIODE MA152WK
IC1	8-759-150-55	s	IC UPD75P516GF-023-3B9
IC2	8-759-946-03	s	IC S-8054ALR-LN-S
IC3	8-759-937-54	s	IC S-81250HG-RD-S
IC4	8-759-100-93	s	IC UPC393G2
IC5	8-759-008-82	s	IC MC14013BF
IC6	8-759-008-82	s	IC MC14013BF
L1	1-408-765-21	s	INDUCTOR, CHIP 1uH
Q1	8-729-901-01	s	TRANSISTOR DTC144EK
Q2	8-729-901-01	s	TRANSISTOR DTC144EK
Q3	8-729-216-22	s	TRANSISTOR 2SA1162
Q4	8-729-100-66	s	TRANSISTOR 2SC1623
Q5	8-729-902-96	s	TRANSISTOR FMS1
Q6	8-729-903-82	s	TRANSISTOR FMW2
Q7	8-729-100-66	s	TRANSISTOR 2SC1623
Q8	8-729-901-01	s	TRANSISTOR DTC144EK
Q9	8-729-901-06	s	TRANSISTOR DTA144EK
Q10	8-729-901-01	s	TRANSISTOR DTC144EK
Q11	8-729-901-06	s	TRANSISTOR DTA144EK
Q12	8-729-119-77	s	TRANSISTOR 2SA1175-FEK
Q13	8-729-901-01	s	TRANSISTOR DTC144EK
Q14	8-729-901-06	s	TRANSISTOR DTA144EK
Q15	8-729-901-01	s	TRANSISTOR DTC144EK
Q16	8-729-216-22	s	TRANSISTOR 2SA1162
R37	1-216-692-11	s	METAL, CHIP 51K 0.5% 1/10W
R38	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R39	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R40	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R41	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R81	1-249-480-11	s	CARBON 3.30 5% 1/2W
R97	1-216-630-11	s	METAL, CHIP 130 0.5% 1/10W
R98	1-216-650-11	s	METAL, CHIP 910 0.5% 1/10W

(SY-153 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
RV1	1-230-870-11	s	RES, ADJ, METAL 10K
X1	1-577-291-11	s	RESONATOR, CERAMIC 4.19MHz

NOTE: Please see pages 14-11 through 14-14 for parts that are not listed in the parts list.

VA-96 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7062-031-A	o	MOUNTED CIRCUIT BOARD, VA-96
1pc	3-744-352-01	o	SHIELD, VA
C1	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C2	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C3	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C4	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C5	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C6	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C15	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C16	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C17	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C18	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C52	1-126-162-11	s	ELECT 3.3uF 20% 50V
C53	1-126-162-11	s	ELECT 3.3uF 20% 50V
C72	1-126-162-11	s	ELECT 3.3uF 20% 50V
C73	1-126-162-11	s	ELECT 3.3uF 20% 50V
D51	8-719-800-76	s	DIODE 1SS226
D52	8-719-800-76	s	DIODE 1SS226
D71	8-719-800-76	s	DIODE 1SS226
D72	8-719-800-76	s	DIODE 1SS226
IC51	8-759-111-56	s	IC UPC4572G2
IC52	8-759-111-56	s	IC UPC4572G2
IC71	8-759-111-56	s	IC UPC4572G2
IC72	8-759-111-56	s	IC UPC4572G2
L13	1-408-785-21	s	INDUCTOR, CHIP 47uH
L14	1-408-785-21	s	INDUCTOR, CHIP 47uH
L51	1-408-776-00	s	INDUCTOR, CHIP 8.2uH
L52	1-408-776-00	s	INDUCTOR, CHIP 8.2uH
L71	1-408-776-00	s	INDUCTOR, CHIP 8.2uH
L72	1-408-776-00	s	INDUCTOR, CHIP 8.2uH
L91	1-408-765-21	s	INDUCTOR, CHIP 1uH
Q91	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q92	8-729-216-22	s	TRANSISTOR 2SA1162
R45	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R46	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R51	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R52	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R53	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R54	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R56	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R57	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R58	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R59	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R60	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R62	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R63	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R64	1-216-638-11	s	METAL, CHIP 300 0.5% 1/10W
R65	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R66	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R71	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R72	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R73	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R74	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R76	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R77	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R78	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R79	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W

(VA-96 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R80	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R82	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R83	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R84	1-216-638-11	s	METAL, CHIP 300 0.5% 1/10W
R85	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R86	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
S1	1-572-301-11	s	SWITCH, SLIDE
S2	1-572-301-11	s	SWITCH, SLIDE

VA-102 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7062-107-A	o	MOUNTED CIRCUIT BOARD, VA-102
C11	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C12	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C13	1-135-161-21	s	TANTALUM, CHIP 22uF 10% 10V
C14	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C21	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C31	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C32	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C33	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C36	1-163-241-11	s	CERAMIC, CHIP 39PF 5% 50V
CN6	1-565-879-11	s	CONNECTOR, 7P, MALE
IC31	1-464-601-11	s	CIRCUIT UNIT, VA
L11	1-408-785-21	s	INDUCTOR, CHIP 47uH
L12	1-408-785-21	s	INDUCTOR, CHIP 47uH
L21	1-408-785-21	s	INDUCTOR, CHIP 47uH
Q21	8-729-201-27	s	TRANSISTOR 2SC2715-Y
Q31	8-729-201-27	s	TRANSISTOR 2SC2715-Y
Q32	8-729-201-27	s	TRANSISTOR 2SC2715-Y
Q33	8-729-201-27	s	TRANSISTOR 2SC2715-Y
Q34	8-729-201-27	s	TRANSISTOR 2SC2715-Y
R21	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R22	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R43	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R44	1-216-633-11	s	METAL, CHIP 180 0.5% 1/10W
RV31	1-228-471-00	s	RES, ADJ, METAL 1K
RV32	1-228-471-00	s	RES, ADJ, METAL 1K

NOTE: Please see pages 14-11 through 14-14 for parts that are not listed in the parts list.

VO-28 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7062-022-A	o	MOUNTED CIRCUIT BOARD, VO-28
2pcs	1-535-622-11	o	PIN, TERMINAL
C400	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C402	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C403	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C405	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C411	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C413	1-135-210-11	s	TANTALUM, CHIP 4.7uF 20% 10V
C414	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C415	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C416	1-163-009-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C417	1-162-997-11	s	CERAMIC, CHIP 10PF 50V
C418	1-163-123-00	s	CERAMIC, CHIP 180PF 5% 50V
C419	1-162-962-11	s	CERAMIC, CHIP 470PF 10% 50V
C420	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C421	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C422	1-135-159-21	s	TANTALUM, CHIP 10uF 10% 20V
C427	1-135-180-21	s	TANTALUM, CHIP 3.3uF 10% 10V
C429	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C430	1-135-210-11	s	TANTALUM, CHIP 4.7uF 20% 10V
C432	1-162-910-11	s	CERAMIC, CHIP 5PF 50V
C433	1-162-923-11	s	CERAMIC, CHIP 47PF 5% 50V
C434	1-135-149-21	s	TANTALUM, CHIP 2.2uF 10% 10V
C435	1-163-131-00	s	CERAMIC, CHIP 390PF 5% 50V
C437	1-162-721-11	s	CERAMIC 300PF 1% 50V
C439	1-162-964-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C441	1-163-010-11	s	CERAMIC, CHIP 0.0012uF 10% 50V
C442	1-135-180-21	s	TANTALUM, CHIP 3.3uF 10% 10V
C444	1-135-210-11	s	TANTALUM, CHIP 4.7uF 20% 10V
C445	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C447	1-135-210-11	s	TANTALUM, CHIP 4.7uF 20% 10V
C448	1-135-162-21	s	TANTALUM, CHIP 33uF 10% 6.3V
C450	1-162-951-11	s	CERAMIC, CHIP 68PF 5% 50V
C452	1-126-603-11	s	ELECT 4.7uF 20% 35V
C454	1-126-603-11	s	ELECT 4.7uF 20% 35V
C456	1-135-210-11	s	TANTALUM, CHIP 4.7uF 20% 10V
C459	1-126-603-11	s	ELECT 4.7uF 20% 35V
C460	1-135-210-11	s	TANTALUM, CHIP 4.7uF 20% 10V
C462	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C463	1-162-964-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C466	1-163-005-11	s	CERAMIC, CHIP 470PF 10% 50V
C469	1-135-201-11	s	TANTALUM, CHIP 10uF 20% 6.3V
C470	1-135-201-11	s	TANTALUM, CHIP 10uF 20% 6.3V
C473	1-162-953-11	s	CERAMIC, CHIP 100PF 5% 50V
C475	1-126-207-11	s	ELECT 33uF 20% 4V
C476	1-162-944-11	s	CERAMIC, CHIP 18PF 5% 50V
C478	1-163-135-00	s	CERAMIC, CHIP 560PF 5% 50V
C481	1-162-951-11	s	CERAMIC, CHIP 68PF 5% 50V
C482	1-162-948-11	s	CERAMIC, CHIP 39PF 5% 50V
C486	1-135-210-11	s	TANTALUM, CHIP 4.7uF 20% 10V
C488	1-135-210-11	s	TANTALUM, CHIP 4.7uF 20% 10V
C490	1-162-959-11	s	CERAMIC, CHIP 330PF 5% 50V
C491	1-162-951-11	s	CERAMIC, CHIP 68PF 5% 50V
C492	1-162-950-11	s	CERAMIC, CHIP 56PF 5% 50V
C495	1-162-917-11	s	CERAMIC, CHIP 15PF 5% 50V
C496	1-162-944-11	s	CERAMIC, CHIP 18PF 5% 50V
C497	1-162-946-11	s	CERAMIC, CHIP 27PF 5% 50V
C499	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V

(VO-28 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C500	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C501	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C502	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C505	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C506	1-163-009-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C507	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C512	1-162-941-11	s	CERAMIC, CHIP 10PF 50V
C515	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C516	1-162-955-11	s	CERAMIC, CHIP 150PF 5% 50V
C517	1-162-955-11	s	CERAMIC, CHIP 150PF 5% 50V
C518	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C522	1-162-945-11	s	CERAMIC, CHIP 22PF 5% 50V
C524	1-162-944-11	s	CERAMIC, CHIP 18PF 5% 50V
C526	1-135-181-21	s	TANTALUM, CHIP 4.7uF 10% 6.3V
C529	1-163-131-00	s	CERAMIC, CHIP 390PF 5% 50V
C532	1-162-944-11	s	CERAMIC, CHIP 18PF 5% 50V
C533	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C534	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C535	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C536	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C538	1-162-954-11	s	CERAMIC, CHIP 120PF 5% 50V
C540	1-162-950-11	s	CERAMIC, CHIP 56PF 5% 50V
C541	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C543	1-162-956-11	s	CERAMIC, CHIP 180PF 5% 50V
C545	1-162-964-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C547	1-162-946-11	s	CERAMIC, CHIP 27PF 5% 50V
C551	1-131-381-00	s	TANTALUM 47uF 10% 10V
CN401	1-566-763-11	o	CONNECTOR, 8P, MALE
CN402	1-566-764-11	o	CONNECTOR, 9P, MALE
CN403	1-565-879-11	s	CONNECTOR, 7P, MALE
CN404	1-565-882-11	o	CONNECTOR, 10P, MALE
CN405	1-566-766-11	o	CONNECTOR, 11P, MALE
CN407	1-633-819-11	o	WIRE, FREXIBLE CARD FL-103
CN408	1-569-035-11	s	CONNECTOR, FPC 30P
CV401	1-141-331-11	s	CAP, TRIMMER, CHIP 30PF
CV402	1-141-331-11	s	CAP, TRIMMER, CHIP 30PF
D401	8-719-123-85	s	DIODE 1SS304
D402	8-719-123-85	s	DIODE 1SS304
D404	8-719-123-85	s	DIODE 1SS304
D405	8-719-123-85	s	DIODE 1SS304
D407	8-719-123-85	s	DIODE 1SS304
D409	8-719-123-85	s	DIODE 1SS304
D411	8-719-949-46	s	DIODE 1T32
D413	8-719-123-85	s	DIODE 1SS304
D414	8-719-123-85	s	DIODE 1SS304
D417	8-719-123-85	s	DIODE 1SS304
D418	8-719-800-76	s	DIODE 1SS226
D419	8-719-123-85	s	DIODE 1SS304
D420	8-719-123-85	s	DIODE 1SS304
D421	8-719-123-85	s	DIODE 1SS304
D422	8-719-123-85	s	DIODE 1SS304
D423	8-719-123-85	s	DIODE 1SS304
D424	8-719-123-85	s	DIODE 1SS304
D425	8-719-123-85	s	DIODE 1SS304
FL401	1-236-370-11	s	FILTER, LOW-PASS
FL402	1-236-371-11	s	FILTER, LOW-PASS

NOTE: Please see pages 14-11 through 14-14 for parts that are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP	Description
IC401	8-759-710-09	s	IC NJM2233AM
IC403	8-759-710-29	s	IC NJM2235M
IC404	8-759-710-29	s	IC NJM2235M
IC405	8-759-009-22	s	IC MC14094BF
IC406	8-759-970-80	s	IC MB673198U
IC407	8-759-140-26	s	IC UPD6145G-601
IC408	8-759-710-12	s	IC NJM2230M
IC409	8-752-031-01	s	IC CXA1047M
IC410	8-752-032-97	s	IC CXA1230AR
L401	1-410-381-11	s	INDUCTOR, CHIP 10uH
L402	1-408-797-11	s	INDUCTOR, CHIP 470uH
L403	1-410-390-11	s	INDUCTOR, CHIP 56uH
L404	1-410-375-11	s	INDUCTOR, CHIP 3.3uH
L405	1-410-384-31	s	INDUCTOR, CHIP 18uH
L406	1-410-390-11	s	INDUCTOR, CHIP 56uH
L407	1-410-378-11	s	INDUCTOR, CHIP 5.6uH
L408	1-410-381-11	s	INDUCTOR, CHIP 10uH
L409	1-408-791-00	s	INDUCTOR, CHIP 150uH
L410	1-410-392-11	s	INDUCTOR, CHIP 82uH
L411	1-410-386-11	s	INDUCTOR, CHIP 27uH
L412	1-410-380-31	s	INDUCTOR, CHIP 8.2uH
L413	1-410-381-11	s	INDUCTOR, CHIP 10uH
L414	1-410-381-11	s	INDUCTOR, CHIP 10uH
L416	1-410-393-11	s	INDUCTOR, CHIP 100uH
L417	1-410-393-11	s	INDUCTOR, CHIP 100uH
L419	1-410-377-31	s	INDUCTOR, CHIP 4.7uH
L421	1-410-382-31	s	INDUCTOR, CHIP 12uH
L431	1-408-978-21	s	INDUCTOR 47uH
Q402	8-729-905-57	s	TRANSISTOR DTA124EU
Q403	8-729-905-57	s	TRANSISTOR DTA124EU
Q404	8-729-905-18	s	TRANSISTOR DTC144EU
Q405	8-729-905-18	s	TRANSISTOR DTC144EU
Q406	8-729-905-18	s	TRANSISTOR DTC144EU
Q407	8-729-117-32	s	TRANSISTOR 2SC4177
Q409	8-729-905-18	s	TRANSISTOR DTC144EU
Q410	8-729-117-32	s	TRANSISTOR 2SC4177
Q411	8-729-905-12	s	TRANSISTOR DTA144EU
Q412	8-729-117-32	s	TRANSISTOR 2SC4177
Q415	8-729-905-18	s	TRANSISTOR DTC144EU
Q416	8-729-905-18	s	TRANSISTOR DTC144EU
Q417	8-729-905-18	s	TRANSISTOR DTC144EU
Q418	8-729-905-18	s	TRANSISTOR DTC144EU
Q419	8-729-905-18	s	TRANSISTOR DTC144EU
Q420	8-729-905-12	s	TRANSISTOR DTA144EU
Q422	8-729-140-63	s	TRANSISTOR 2SA1611-M5M6
Q424	8-729-202-38	s	TRANSISTOR 2SC3326N
Q426	8-729-202-38	s	TRANSISTOR 2SC3326N
Q427	8-729-117-32	s	TRANSISTOR 2SC4177
Q428	8-729-907-45	s	TRANSISTOR IMD2T109
Q429	8-729-117-32	s	TRANSISTOR 2SC4177
Q430	8-729-216-22	s	TRANSISTOR 2SA1162
Q431	8-729-905-18	s	TRANSISTOR DTC144EU
Q432	8-729-905-18	s	TRANSISTOR DTC144EU
Q433	8-729-905-12	s	TRANSISTOR DTA144EU
Q434	8-729-117-32	s	TRANSISTOR 2SC4177
Q437	8-729-905-12	s	TRANSISTOR DTA144EU
Q438	8-729-117-32	s	TRANSISTOR 2SC4177
Q439	8-729-117-32	s	TRANSISTOR 2SC4177

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Ref. No. or Q'ty	Part No.	SP	Description
Q440	8-729-117-32	s	TRANSISTOR 2SC4177
Q441	8-729-117-32	s	TRANSISTOR 2SC4177
Q442	8-729-117-32	s	TRANSISTOR 2SC4177
Q443	8-729-905-12	s	TRANSISTOR DTA144EU
Q444	8-729-140-63	s	TRANSISTOR 2SA1611-M5M6
Q445	8-729-117-32	s	TRANSISTOR 2SC4177
Q446	8-729-117-32	s	TRANSISTOR 2SC4177
Q447	8-729-117-32	s	TRANSISTOR 2SC4177
Q448	8-729-162-44	s	TRANSISTOR 2SB624-BV4
Q449	8-729-905-18	s	TRANSISTOR DTC144EU
Q450	8-729-140-63	s	TRANSISTOR 2SA1611-M5M6
Q451	8-729-117-32	s	TRANSISTOR 2SC4177
Q452	8-729-117-32	s	TRANSISTOR 2SC4177
Q453	8-729-903-10	s	TRANSISTOR FMW1
Q454	8-729-905-18	s	TRANSISTOR DTC144EU
Q455	8-729-905-12	s	TRANSISTOR DTA144EU
Q456	8-729-117-32	s	TRANSISTOR 2SC4177
Q460	8-729-117-32	s	TRANSISTOR 2SC4177
Q461	8-729-904-07	s	TRANSISTOR FMG2
Q462	8-729-905-18	s	TRANSISTOR DTC144EU
Q463	8-729-905-12	s	TRANSISTOR DTA144EU
Q464	8-729-117-32	s	TRANSISTOR 2SC4177
Q465	8-729-117-32	s	TRANSISTOR 2SC4177
Q466	8-729-117-32	s	TRANSISTOR 2SC4177
Q467	8-729-905-18	s	TRANSISTOR DTC144EU
Q468	8-729-905-18	s	TRANSISTOR DTC144EU
Q469	8-729-216-22	s	TRANSISTOR 2SA1162
Q470	8-729-117-32	s	TRANSISTOR 2SC4177
Q471	8-729-905-18	s	TRANSISTOR DTC144EU
Q472	8-729-216-22	s	TRANSISTOR 2SA1162
Q473	8-729-102-07	s	TRANSISTOR 2SC2223-F13
Q474	8-729-102-07	s	TRANSISTOR 2SC2223-F13
Q475	8-729-140-63	s	TRANSISTOR 2SA1611-M5M6
Q476	8-729-117-32	s	TRANSISTOR 2SC4177
Q477	8-729-117-32	s	TRANSISTOR 2SC4177
Q478	8-729-140-63	s	TRANSISTOR 2SA1611-M5M6
Q479	8-729-905-12	s	TRANSISTOR DTA144EU
Q480	8-729-905-18	s	TRANSISTOR DTC144EU
Q481	8-729-905-12	s	TRANSISTOR DTA144EU
Q482	8-729-905-18	s	TRANSISTOR DTC144EU
Q483	8-729-905-18	s	TRANSISTOR DTC144EU
Q485	8-729-140-63	s	TRANSISTOR 2SA1611-M5M6
Q486	8-729-140-63	s	TRANSISTOR 2SA1611-M5M6
Q487	8-729-905-18	s	TRANSISTOR DTC144EU
Q488	8-729-905-57	s	TRANSISTOR DTA124EU
Q489	8-729-905-57	s	TRANSISTOR DTA124EU
Q490	8-729-905-18	s	TRANSISTOR DTC144EU
Q491	8-729-140-63	s	TRANSISTOR 2SA1611-M5M6
Q492	8-729-905-18	s	TRANSISTOR DTC144EU
Q493	8-729-905-18	s	TRANSISTOR DTC144EU
Q494	8-729-905-18	s	TRANSISTOR DTC144EU
Q497	8-729-905-18	s	TRANSISTOR DTC144EU
Q498	8-729-905-12	s	TRANSISTOR DTA144EU
Q499	8-729-905-12	s	TRANSISTOR DTA144EU
Q500	8-729-117-32	s	TRANSISTOR 2SC4177
Q501	8-729-140-63	s	TRANSISTOR 2SA1611-M5M6
Q502	8-729-140-63	s	TRANSISTOR 2SA1611-M5M6
Q503	8-729-117-32	s	TRANSISTOR 2SC4177
Q504	8-729-140-63	s	TRANSISTOR 2SA1611-M5M6

NOTE: Please see pages 14-11 through 14-14 for parts that are not listed in the parts list.

(VO-28 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q505	8-729-117-32	s	TRANSISTOR 2SC4177
Q506	8-729-905-18	s	TRANSISTOR DTC144EU
Q507	8-729-140-63	s	TRANSISTOR 2SA1611-M5M6
Q509	8-729-117-32	s	TRANSISTOR 2SC4177
Q510	8-729-117-32	s	TRANSISTOR 2SC4177
Q513	8-729-905-12	s	TRANSISTOR DTA144EU
R301	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R302	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R303	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R304	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R305	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R306	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R307	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R308	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R309	1-216-864-11	s	METAL, CHIP 0-OHM
R310	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R311	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R312	1-216-812-11	s	METAL, CHIP 180 5% 1/16W
R313	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R314	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R316	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R317	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R318	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R319	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R320	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R321	1-216-814-11	s	METAL, CHIP 270 5% 1/16W
R322	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R323	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R324	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R325	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R326	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R327	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R328	1-216-818-11	s	METAL, CHIP 560 5% 1/16W
R329	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R330	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R331	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R332	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R334	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R335	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R336	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R337	1-216-864-11	s	METAL, CHIP 0-OHM
R338	1-216-848-11	s	METAL, CHIP 180K 5% 1/16W
R340	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R341	1-216-864-11	s	METAL, CHIP 0-OHM
R342	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R352	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R354	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R356	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R357	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R358	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R359	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R360	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R363	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R364	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R365	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R366	1-216-820-11	s	METAL, CHIP 820 5% 1/16W
R367	1-216-816-11	s	METAL, CHIP 390 5% 1/16W
R368	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W

NOTE: Please see pages 14-11 through 14-14 for parts that are not listed in the parts list.

(VO-28 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R369	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R370	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R375	1-216-840-11	s	METAL, CHIP 39K 5% 1/16W
R376	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R377	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R378	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R379	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R380	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R381	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R382	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R386	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R388	1-216-864-11	s	METAL, CHIP 0-OHM
R390	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R391	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R392	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R393	1-216-819-11	s	METAL, CHIP 680 5% 1/16W
R394	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R395	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R396	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R397	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R398	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R400	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R401	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R402	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R403	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R404	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R405	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R406	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R407	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R408	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R409	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R410	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R411	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R412	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R413	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R414	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R415	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R416	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R417	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R418	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R419	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R420	1-216-842-11	s	METAL, CHIP 56K 5% 1/16W
R421	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R422	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R423	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R424	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R425	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R426	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R427	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R428	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R429	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R430	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R431	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R432	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R433	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R434	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R435	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R436	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R437	1-216-851-11	s	METAL, CHIP 330K 5% 1/16W

(VO-28 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R438	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R440	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R441	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R442	1-216-818-11	s	METAL, CHIP 560 5% 1/16W
R444	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R445	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R446	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R449	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R450	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R451	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R455	1-216-848-11	s	METAL, CHIP 180K 5% 1/16W
R458	1-216-847-11	s	METAL, CHIP 150K 5% 1/16W
R459	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R460	1-216-848-11	s	METAL, CHIP 180K 5% 1/16W
R461	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R462	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R463	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R464	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R465	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R466	1-216-847-11	s	METAL, CHIP 150K 5% 1/16W
R468	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R469	1-216-851-11	s	METAL, CHIP 330K 5% 1/16W
R471	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R472	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R473	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R479	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R480	1-216-855-11	s	METAL, CHIP 680K 5% 1/16W
R481	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R482	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R483	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R484	1-216-816-11	s	METAL, CHIP 390 5% 1/16W
R485	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R486	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R487	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R488	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R489	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R490	1-216-842-11	s	METAL, CHIP 56K 5% 1/16W
R491	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R492	1-216-843-11	s	METAL, CHIP 68K 5% 1/16W
R493	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R494	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R495	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R496	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R498	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R499	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R500	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R501	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R502	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R503	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R504	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R505	1-216-853-11	s	METAL, CHIP 470K 5% 1/16W
R506	1-216-846-11	s	METAL, CHIP 120K 5% 1/16W
R507	1-216-847-11	s	METAL, CHIP 150K 5% 1/16W
R510	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R512	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R513	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R514	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R515	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R516	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W

(VO-28 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R517	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R518	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R519	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R521	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R522	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R523	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R525	1-216-818-11	s	METAL, CHIP 560 5% 1/16W
R526	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R527	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R528	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R529	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R530	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R531	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R532	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R533	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R534	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R535	1-216-816-11	s	METAL, CHIP 390 5% 1/16W
R536	1-216-811-11	s	METAL, CHIP 150 5% 1/16W
R537	1-216-819-11	s	METAL, CHIP 680 5% 1/16W
R538	1-216-818-11	s	METAL, CHIP 560 5% 1/16W
R539	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R540	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R541	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R542	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R543	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R544	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R545	1-216-818-11	s	METAL, CHIP 560 5% 1/16W
R546	1-216-814-11	s	METAL, CHIP 270 5% 1/16W
R547	1-216-814-11	s	METAL, CHIP 270 5% 1/16W
R548	1-216-816-11	s	METAL, CHIP 390 5% 1/16W
R549	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R551	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R552	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R553	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R554	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R555	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R556	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R557	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R558	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R559	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R561	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R562	1-216-815-11	s	METAL, CHIP 330 5% 1/16W
R563	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R564	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R565	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R566	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R567	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R568	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R569	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R570	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R571	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R572	1-216-820-11	s	METAL, CHIP 820 5% 1/16W
R579	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R581	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R582	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R583	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R584	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R585	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R586	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W

NOTE: Please see pages 14-11 through 14-14 for parts that are not listed in the parts list.

(VO-28 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R587	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R588	1-216-864-11	s	METAL, CHIP 0-OHM
R590	1-216-864-11	s	METAL, CHIP 0-OHM
R592	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R593	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R594	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R595	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R596	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R597	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
RV401	1-230-867-11	s	RES, ADJ, METAL 1K
RV404	1-230-868-11	s	RES, ADJ, METAL 2.2K
RV405	1-230-867-11	s	RES, ADJ, METAL 1K
RV406	1-230-869-11	s	RES, ADJ, METAL 4.7K
RV407	1-230-871-11	s	RES, ADJ, METAL 22K
RV408	1-230-870-11	s	RES, ADJ, METAL 10K
RV409	1-230-870-11	s	RES, ADJ, METAL 10K
RV410	1-230-869-11	s	RES, ADJ, METAL 4.7K
RV416	1-230-870-11	s	RES, ADJ, METAL 10K
RV417	1-230-874-11	s	RES, ADJ, METAL 100K

NOTE: Please see pages 14-11 through 14-14 for parts that are not listed in the parts list.

VO-29 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
This board includes HD-8 Board.			
1pc	A-7062-023-A	o	MOUNTED CIRCUIT BOARD, VO-29
1pc	A-7068-141-A	s	MOUNTED CIRCUIT BOARD, HD-8
2pcs	1-535-622-11	o	PIN, TERMINAL
C600	1-135-166-21	s	TANTALUM, CHIP 47uF 10% 10V
C602	1-164-182-11	s	CERAMIC CHIP 3300PF 10% 100V
C603	1-126-603-11	s	ELECT 4.7uF 20% 35V
C604	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C605	1-163-003-11	s	CERAMIC 330PF 10% 50VW
C607	1-163-009-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C610	1-163-115-00	s	CERAMIC, CHIP 82PF 5% 50V
C611	1-135-091-00	s	TANTALUM, CHIP 1uF 10% 16V
C612	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C613	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C615	1-135-149-21	s	TANTALUM, CHIP 2.2uF 10% 10V
C616	1-163-009-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C620	1-162-964-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C621	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C622	1-135-170-21	s	TANTALUM, CHIP 6.8uF 10% 4V
C623	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C624	1-135-149-21	s	TANTALUM, CHIP 2.2uF 10% 10V
C625	1-162-961-11	s	CERAMIC, CHIP 330PF 10% 50V
C626	1-162-961-11	s	CERAMIC, CHIP 330PF 10% 50V
C627	1-163-009-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C628	1-162-917-11	s	CERAMIC, CHIP 15PF 5% 50V
C632	1-163-111-00	s	CERAMIC, CHIP 56PF 5% 50V
C637	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C638	1-163-009-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C639	1-135-149-21	s	TANTALUM, CHIP 2.2uF 10% 10V
C640	1-163-009-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C641	1-135-149-21	s	TANTALUM, CHIP 2.2uF 10% 10V
C642	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C643	1-135-181-21	s	TANTALUM, CHIP 4.7uF 10% 6.3V
C645	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C647	1-163-003-11	s	CERAMIC 330PF 10% 50VW
C649	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C650	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C666	1-163-003-11	s	CERAMIC 330PF 10% 50VW
C668	1-163-003-11	s	CERAMIC 330PF 10% 50VW
C671	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C672	1-162-963-11	s	CERAMIC, CHIP 680PF 10% 50V
C676	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C677	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C678	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C679	1-162-974-11	s	CERAMIC, CHIP 0.01uF 50V
C680	1-162-953-11	s	CERAMIC, CHIP 100PF 5% 50V
C681	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C682	1-124-778-00	s	ELECT 22uF 20% 6.3V
C683	1-124-778-00	s	ELECT 22uF 20% 6.3V
C684	1-126-603-11	s	ELECT 4.7uF 20% 35V
C687	1-135-170-21	s	TANTALUM, CHIP 6.8uF 10% 4V
C688	1-126-603-11	s	ELECT 4.7uF 20% 35V
C690	1-135-181-21	s	TANTALUM, CHIP 4.7uF 10% 6.3V
C692	1-162-917-11	s	CERAMIC, CHIP 15PF 5% 50V
C702	1-163-111-00	s	CERAMIC, CHIP 56PF 5% 50V
C708	1-135-091-00	s	TANTALUM, CHIP 1uF 10% 16V
C709	1-162-964-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C710	1-162-962-11	s	CERAMIC, CHIP 470PF 10% 50V
C713	1-163-110-00	s	CERAMIC, CHIP 51PF 5% 50V

(VO-29 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C714	1-162-921-11	s	CERAMIC, CHIP 33PF 5% 50V
C720	1-163-095-00	s	CERAMIC, CHIP 12PF 5% 50V
C722	1-135-158-21	s	TANTALUM, CHIP 15uF 10% 4V
C725	1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C727	1-163-095-00	s	CERAMIC, CHIP 12PF 5% 50V
C730	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
CN601	1-633-820-11	o	WIRE, FREXIBLE CARD FL-104
CV601	1-141-311-11	s	CAR, TRIMMER 20PF
D609	8-719-123-85	s	DIODE 1SS304
D614	8-719-800-76	s	DIODE 1SS226
D616	8-719-404-40	s	DIODE MA121
D619	8-719-400-18	s	DIODE MA152WK
D620	8-719-400-18	s	DIODE MA152WK
DL601	1-415-612-11	s	DELAY LINE 63.56uS
DL603	1-415-652-11	s	DELAY LINE 80nS
FL601	1-567-306-11	s	FILTER, CERAMIC 4.32MHz
FL602	1-236-372-11	s	FILTER, BANDPASS 3.58MHz
FL603	1-409-386-11	s	TRAP, CHROMA 3.58MHz
FL604	1-236-373-11	s	FILTER, BANDPASS 3.58MHz
IC601	8-759-924-94	s	IC CX22021
IC602	8-752-003-22	s	IC CX20032
IC604	8-752-305-47	s	IC CX23054
IC605	8-759-710-09	s	IC NJM2233AM
IC606	8-759-710-07	s	IC NJM2234M
IC609	8-759-925-60	s	IC BA401
L601	1-410-657-21	s	INDUCTOR, CHIP 180uH
L602	1-410-387-11	s	INDUCTOR, CHIP 33uH
L603	1-410-393-11	s	INDUCTOR, CHIP 100uH
L604	1-410-656-11	s	INDUCTOR, CHIP 150uH
L605	1-410-655-31	s	INDUCTOR, CHIP 120uH
L606	1-410-393-11	s	INDUCTOR, CHIP 100uH
L607	1-410-381-11	s	INDUCTOR, CHIP 10uH
L609	1-410-391-11	s	INDUCTOR, CHIP 68uH
L610	1-410-371-21	s	INDUCTOR, CHIP 1.5uH
L611	1-410-371-21	s	INDUCTOR, CHIP 1.5uH
L612	1-410-381-11	s	INDUCTOR, CHIP 10uH
L613	1-410-381-11	s	INDUCTOR, CHIP 10uH
L614	1-408-779-31	s	INDUCTOR, CHIP 15uH
L616	1-410-393-11	s	INDUCTOR, CHIP 100uH
L617	1-410-390-11	s	INDUCTOR, CHIP 56uH
L620	1-410-381-11	s	INDUCTOR, CHIP 10uH
L621	1-410-388-21	s	INDUCTOR, CHIP 39uH
L624	1-410-376-21	s	INDUCTOR, CHIP 3.9uH
L625	1-410-383-31	s	INDUCTOR, CHIP 15uH
LV601	1-460-059-11	s	COIL, VAR 15uH
Q601	8-729-216-22	s	TRANSISTOR 2SA1162
Q602	8-729-140-63	s	TRANSISTOR 2SA1611-M5M6
Q604	8-729-117-32	s	TRANSISTOR 2SC4177
Q606	8-729-117-32	s	TRANSISTOR 2SC4177
Q608	8-729-904-07	s	TRANSISTOR FMG2
Q609	8-729-901-01	s	TRANSISTOR DTC144EK
Q610	8-729-904-07	s	TRANSISTOR FMG2
Q612	8-729-901-01	s	TRANSISTOR DTC144EK
Q613	8-729-162-44	s	TRANSISTOR 2SB624-BV4
Q614	8-729-905-12	s	TRANSISTOR DTA144EU

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Ref. No. or Q'ty	Part No.	SP	Description
Q615	8-729-905-45	s	TRANSISTOR DTA143EU
Q616	8-729-140-63	s	TRANSISTOR 2SA1611-M5M6
Q617	8-729-117-32	s	TRANSISTOR 2SC4177
Q618	8-729-117-32	s	TRANSISTOR 2SC4177
Q630	8-729-901-01	s	TRANSISTOR DTC144EK
Q631	8-729-100-66	s	TRANSISTOR 2SC1623
Q632	8-729-100-66	s	TRANSISTOR 2SC1623
Q633	8-729-901-06	s	TRANSISTOR DTA144EK
Q634	8-729-904-07	s	TRANSISTOR FMG2
Q636	8-729-904-20	s	TRANSISTOR FMA2
Q638	8-729-901-06	s	TRANSISTOR DTA144EK
Q639	8-729-901-01	s	TRANSISTOR DTC144EK
Q640	8-729-901-06	s	TRANSISTOR DTA144EK
Q645	8-729-117-32	s	TRANSISTOR 2SC4177
Q646	8-729-903-10	s	TRANSISTOR FMW1
Q647	8-729-216-22	s	TRANSISTOR 2SA1162
Q649	8-729-117-32	s	TRANSISTOR 2SC4177
Q650	8-729-100-66	s	TRANSISTOR 2SC1623
Q651	8-729-901-06	s	TRANSISTOR DTA144EK
Q652	8-729-100-66	s	TRANSISTOR 2SC1623
Q654	8-729-117-32	s	TRANSISTOR 2SC4177
R101	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R113	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R115	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R122	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R123	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R124	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R125	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R126	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R127	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R610	1-216-830-11	s	METAL, CHIP 5.6K 5% 1/16W
R614	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R615	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R616	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R617	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R619	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R620	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R621	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R623	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R624	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R625	1-216-823-11	s	METAL, CHIP 1.5K 5% 1/16W
R626	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R628	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R629	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R634	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R675	1-216-818-11	s	METAL, CHIP 560 5% 1/16W
R676	1-216-819-11	s	METAL, CHIP 680 5% 1/16W
R678	1-216-831-11	s	METAL, CHIP 6.8K 5% 1/16W
R680	1-216-840-11	s	METAL, CHIP 39K 5% 1/16W
R681	1-216-840-11	s	METAL, CHIP 39K 5% 1/16W
R701	1-216-818-11	s	METAL, CHIP 560 5% 1/16W
R702	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R708	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R709	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R710	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R713	1-216-815-11	s	METAL, CHIP 330 5% 1/16W
R714	1-216-816-11	s	METAL, CHIP 390 5% 1/16W
R750	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W

NOTE: Please see pages 14-11 through 14-14 for parts that are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP	Description
R756	1-216-822-11	s	METAL, CHIP 1.2K 5% 1/16W
R757	1-216-843-11	s	METAL, CHIP 68K 5% 1/16W
R780	1-216-864-11	s	METAL, CHIP 0-OHM
R781	1-216-864-11	s	METAL, CHIP 0-OHM
R782	1-216-864-11	s	METAL, CHIP 0-OHM
R783	1-216-864-11	s	METAL, CHIP 0-OHM
R797	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R799	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
RV601	1-230-871-11	s	RES, ADJ, METAL 22K
RV602	1-230-871-11	s	RES, ADJ, METAL 22K
X601	1-567-505-61	s	CRYSTAL 3.579545MHz

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7048-271-A	s	DRUM ASS'Y, DGU-36D-R
1pc	A-7049-191-A	s	DRUM UPPER ASS'Y, DGR-36-R
1pc	1-535-739-12	s	TERMINAL, SHAFT EARTH
1pc	1-575-620-11	o	WIRE, FLEXIBLE CARD(CC43 to SS43)
CN011	1-537-142-11	s	TERMINAL BOARD "VIDEO OUT", "AUDIO OUT", "RFU DC OUT"
CN012	1-564-603-11	s	CONNECTOR WITH DC SW 4P, MALE "EXT DC IN"
CN022	1-561-781-11	s	RECEPTACLE, BNC FEMALE "VIDEO OUT"
CN032	1-563-029-21	s	RECEPTACLE, XLR 3P FEMALE "AUDIO CH-1" (FOR UC)
	1-563-030-21	s	RECEPTACLE, XLR 3P MALE "AUDIO CH-1" (FOR J)
CN033	1-563-029-21	s	RECEPTACLE, XLR 3P FEMALE "AUDIO CH-2" (FOR UC)
	1-563-030-21	s	RECEPTACLE, XLR 3P MALE "AUDIO CH-2" (FOR J)
CS001	1-808-505-12	s	SENSOR "CONDENSATION SENSOR"
M902	8-835-331-01	s	MOTOR, DC U-22A "CAPSTAN"
M903	A-7040-160-A	s	MOTOR ASS'Y, "THREADING"
ME001	1-520-495-11	s	METER, LEVEL "PCM1"
ME002	1-520-495-12	s	METER, LEVEL "PCM2/AFM/BATT"
S101	1-552-504-00	s	SWITCH, TOGLE "POWER"
SP001	1-554-312-11	s	SPEAKER (DIA.20), "EAR SPEAKER"

NOTE: Please see pages 14-11 through 14-14 for parts that are not listed in the parts list.

14-4. PACKING MATERIAL AND ACCESSORIES

Ref. No. or Q'ty	Part No.	SP	Description
1	3-744-362-01	o	INDIVIDUAL CARTON
1	3-744-367-01	o	SPACER
1	3-698-917-01	o	BELT, SHOULDER
1	3-701-630-00	s	BAG, POLYETHYLENE
1	3-744-355-01	o	SHAFT, GUIDE
1	3-744-358-01	o	CUSHION (FRONT)
1	3-744-359-01	o	CUSHION (REAR)
1	3-751-650-21	s	MANUAL, INSTRUCTION (UC)
1	3-751-650-01	s	MANUAL, INSTRUCTION (J)

14-5. FIXTURE (OPTION)

Part No.	SP	Description
7-700-766-01	o	HEXAGONAL SCREWDRIVER (0.89 mm)
7-741-900-53	o	WIPING CROTH
8-967-992-12	o	ALIGNMENT TAPE, WR2-3NS
8-967-995-02	o	ALIGNMENT TAPE, WR5-1NP
8-967-995-13	o	ALIGNMENT TAPE, WR5-7NE
8-967-995-42	o	ALIGNMENT TAPE, WR5-5NSP
8-967-995-43	o	ALIGNMENT TAPE, WR5-8NSE
J-6080-824-A	o	FWD, REV WINDING TORQUE CASSETTE
J-6080-825-A	o	MODE SELECTOR
J-6080-840-A	o	SMALL ADJUSTMENT MIRROR
J-6082-021-A	o	MODE SELECTOR III CONVERSION CONNECTOR
J-6082-023-A	o	MODE SELECROR III PANEL
Y-2031-001-1	o	CLEANING FLUID

EVV-9000(UC)
9-967-299-01

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